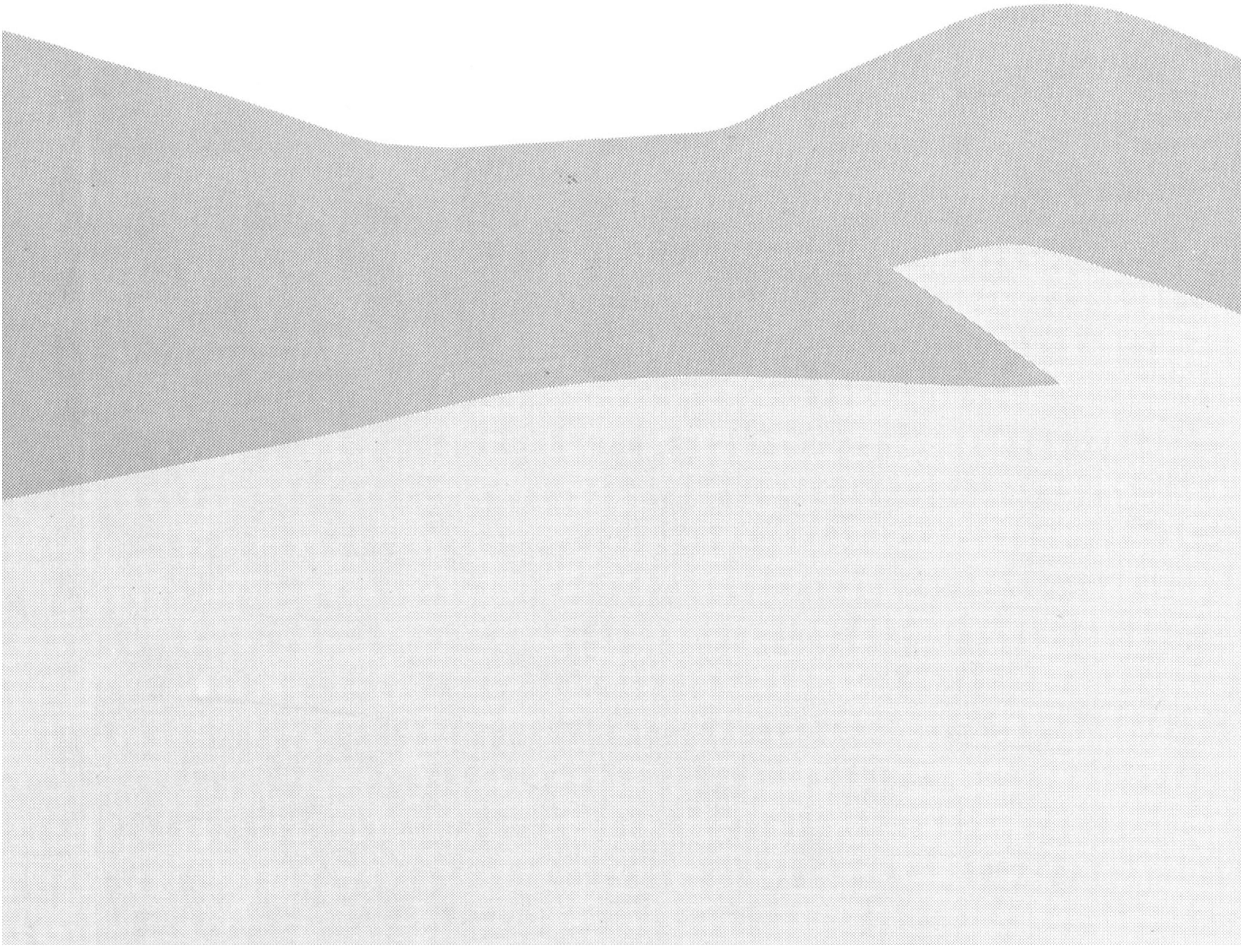
Soil Survey of

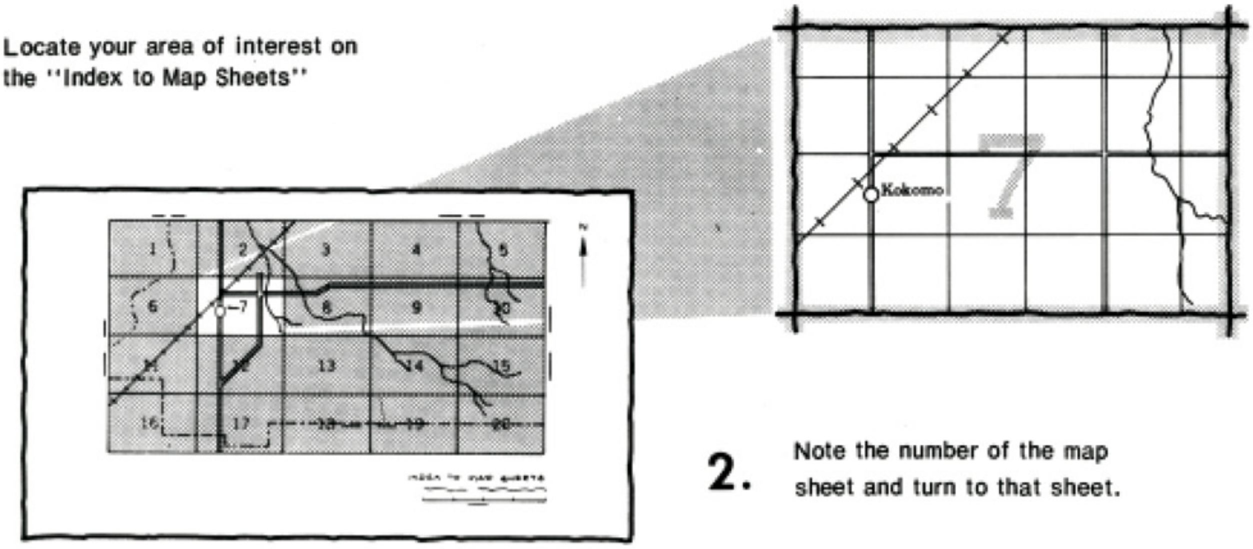
Davidson County, Tennessee

United States Department of Agriculture
Soil Conservation Service
in cooperation with
the University of Tennessee Agricultural Experiment Station



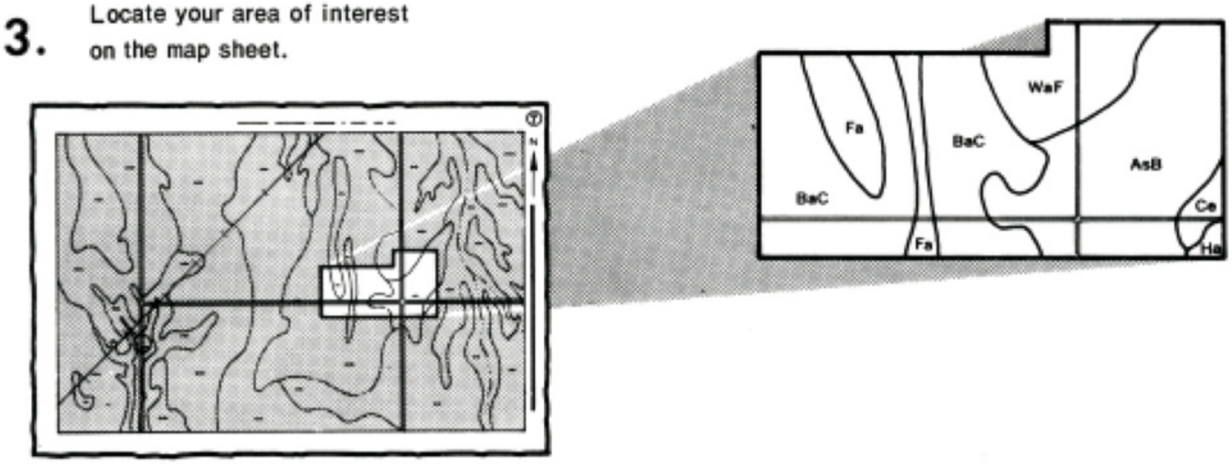
HOW TO USE

1. Locate your area of interest on the "Index to Map Sheets"

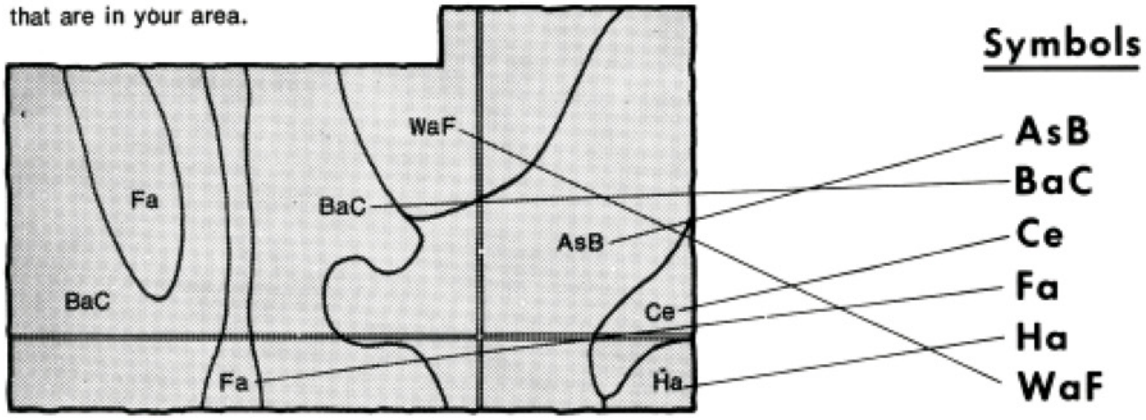


2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.

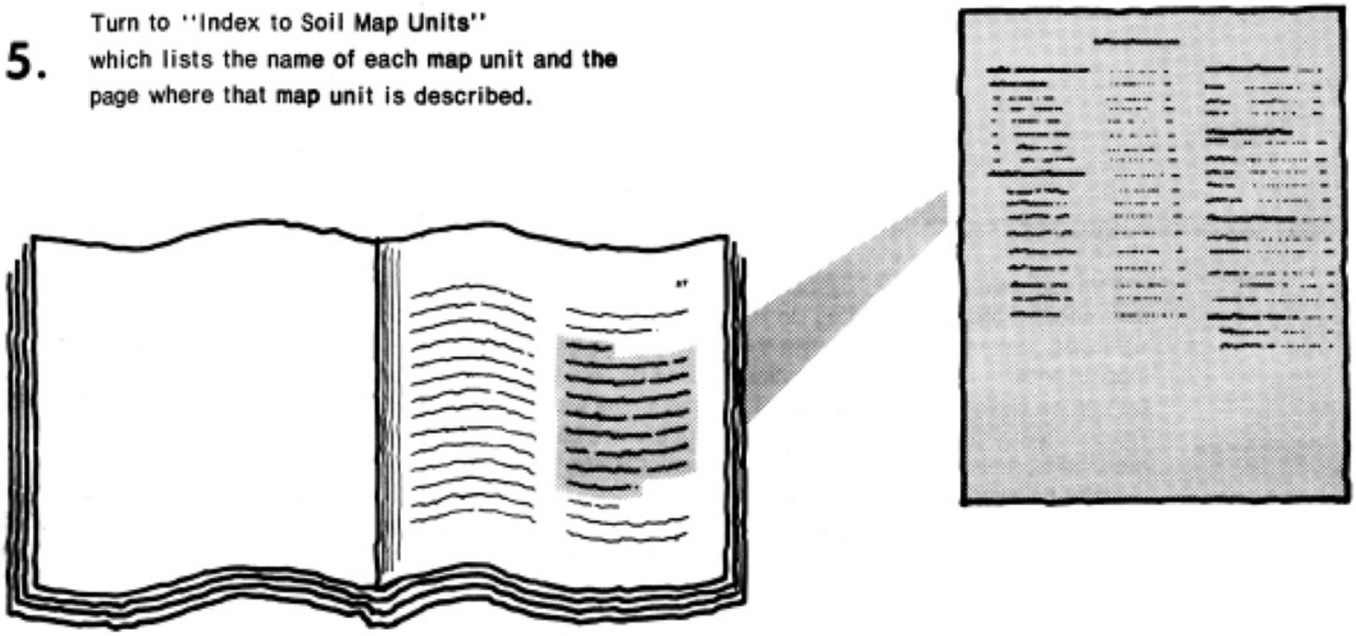


4. List the map unit symbols that are in your area.

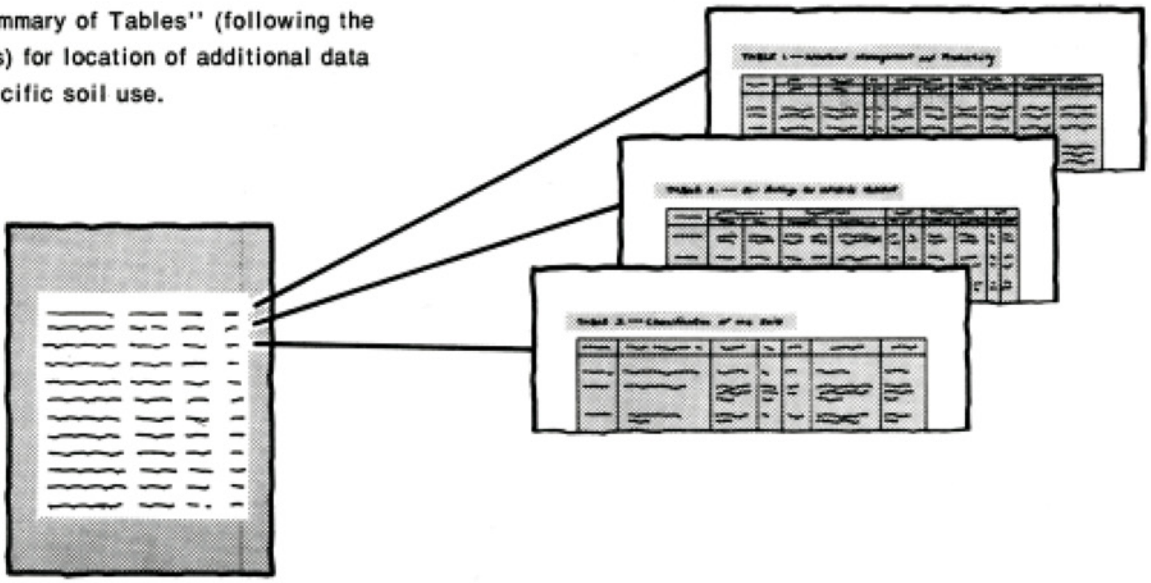


THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was performed in the period 1970-1977. Soil names and descriptions were approved in 1977. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1977. This survey was made cooperatively by the Soil Conservation Service and the University of Tennessee Agricultural Experiment Station. It is part of the technical assistance furnished to the Davidson County Soil Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

This survey supersedes the soil survey of Davidson County published in 1904 (*7*).

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foreword

This soil survey contains information that can be used in land-planning programs in Davidson County, Tennessee. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

Donald C Bivens

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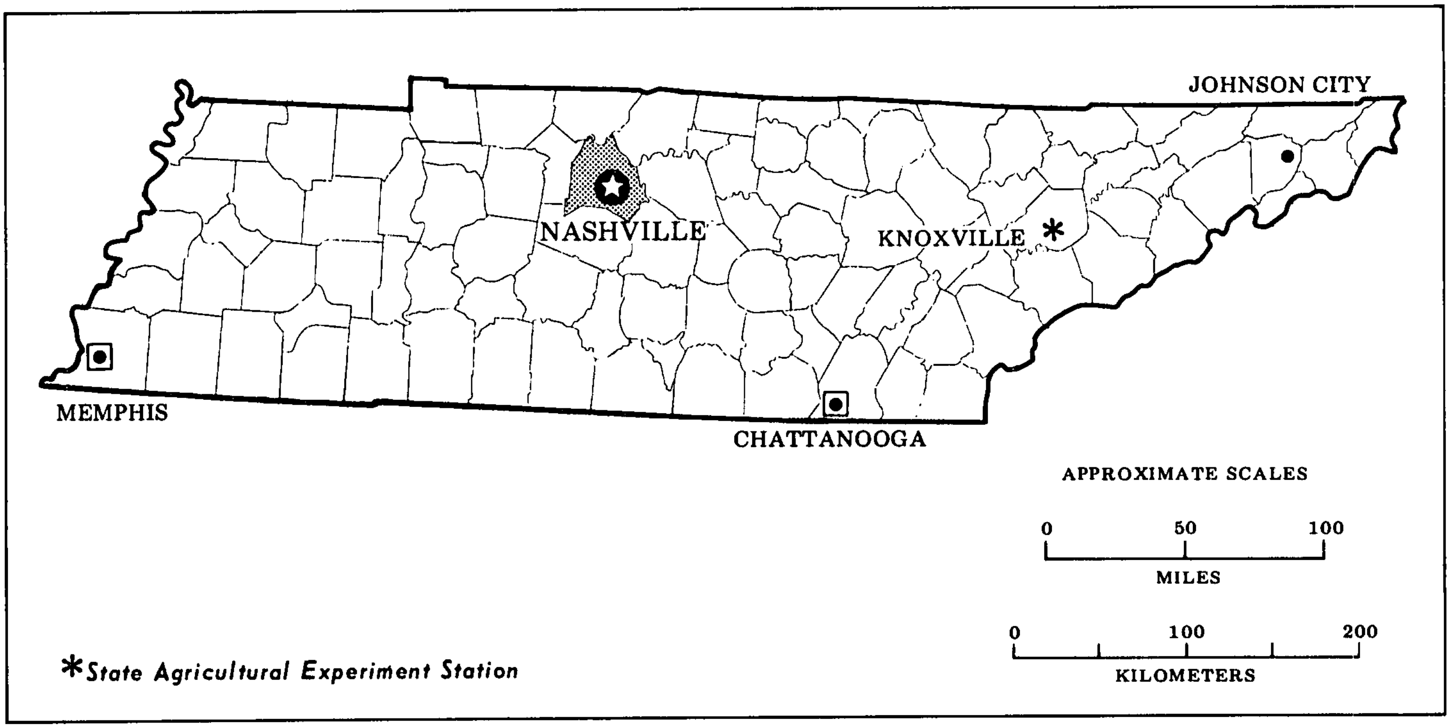

Location of Davidson County in Tennessee.

soil survey of
Davidson County, Tennessee

By Olin L. North, Soil Conservation Service

Soils surveyed by Olin L. North, Ted E. Cox, Hershel D. Dollar,
William G. Hall, Robert B. Hinton, Carlie McCowan
and Charles E. McCroskey, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service,
in cooperation with
the University of Tennessee Agricultural Experiment Station

general nature of the survey area

DAVIDSON COUNTY is in north-central Tennessee. It has a total land area of 325,700 acres, or 509 square miles. Elevation ranges from about 400 to 1,100 feet above sea level.

Nashville, the county seat, is the capital and second largest city of Tennessee. The population of the Nashville metropolitan area is about 500,000. The city has encroached on much of the good agricultural land, but farming is still a viable enterprise in the county.

The county is part of the Central Highland Geologic Province. Most of the county is the north and west. It is gently rolling in the southeast. The Cumberland River meanders from east to west across the center of the county.

Most soils on hilltops in the northwest section formed in about 2 to 3 feet of loess. Most soils in the central and southeastern sections formed in material weathered from the underlying limestone bedrock. There are many rock outcrops and sinkholes in this region. Soils along the Cumberland River and its tributaries formed in alluvial deposits. The formation of the soils in Davidson County is described in "The soils of the Nashville Basin" (*3*).

settlement

When the first settlements were made in the Davidson County area, the territory that is now Tennessee was still part of North Carolina. Fort Nashborough, the first settlement in the area, was named for General Francis Nash, a Revolutionary War officer of North Carolina. Fort Nashborough was founded by James Robertson in 1779.

Davidson County was formed on October 6, 1783. It was named for General William Davidson, one of North Carolina's Revolutionary War heroes. The county extended from the Cumberland Mountains westward to the Tennessee River and from 35 degrees 50 minutes north latitude south to the Duck River (*6*). The present boundaries of the county were not established until much later. In the same year that the county was established, patriotic revolutionary sentiment resulted in the substitution of the French *ville* for the British *borough*, and Nashborough became Nashville.

One renowned early settler was Andrew Jackson, who moved to Nashville in 1788 and began practicing law. He was elected President in 1828 and served two terms. His home, the Hermitage, near Donelson, Tennessee, is now a historical landmark.

The early settlers hunted, cleared new land, and grew corn. The need for improvement of crop production was apparent, and in 1819 a group of farmers in Davidson County formed a conservation group called the "Cumberland Agricultural Society" (*4*). Before the Civil War, cotton was a major crop, but by 1900 it was grown on only a limited acreage. Tobacco had become a major crop, especially on the Highland Rim.

industry and transportation

Industries in Davidson County include manufacturing, marketing, banking, printing and publishing, agribusiness, housing, and tourism. The more than 750 industries in the county employ more than 30 percent of the nonagricultural workers. Manufacturing and printing and publishing are the chief industries.

Nashville is one of the largest American centers for recording and distributing music. More than half of all single records sold in the United States are recorded in Nashville.

Farmland makes up 41 percent of the total land area of the county. The major farm enterprises are crop and livestock production. Hay, corn, soybeans, wheat, tobacco, livestock, and poultry are important products. Processing and distributing agricultural products are also important to the local economy.

Davidson County has an excellent network of 16 state, federal, and interstate highways. Interstate highways 24, 40, and 65, which meet in Nashville, are arteries of transportation to other large cities. The many state and county highways make every part of the county accessible for easy movement of farm products and freight. Sixty-six common carrier freight lines and 6 bus lines operate within county boundaries.

The Cumberland, Tennessee, Ohio, and Mississippi Rivers connect Nashville and Davidson County to the Gulf of Mexico. Barges use the Cumberland River to transport sand, gravel, asphalt, cement, petroleum, steel, and other products to and from the county.

Ten airlines and two railroads serve Nashville. About 185 scheduled commercial flights and 75 tons of freight move through the Nashville Metropolitan Airport daily. Railroads move more than 36 million tons of cargo through Nashville yearly.

climate

Prepared by the National Climatic Center, Asheville, North Carolina.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Nashville in the period 1951 to 1975. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 40 degrees F, and the average daily minimum temperature is 30 degrees. The lowest temperature on record, which occurred at Nashville on January 24, 1963, is -15 degrees. In summer the average temperature is 78 degrees, and the average daily maximum temperature is 89 degrees. The highest recorded temperature, which occurred at Nashville on July 27, 1952, is 107 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 47.83 inches. Of this, 23 inches, or 48 percent, usually falls in April through September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 20 inches. The heaviest 1-day rainfall during the period of record was 5.09 inches at Nashville on September 13, 1962. Thunderstorms occur on about 55 days each year, and most occur in summer.

Average seasonal snowfall is 11 inches. The greatest snow depth at any one time during the period of record was 9 inches. On an average of 4 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon in spring is less than 55 percent; during the rest of the year it is about 60 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 66 percent of the time possible in summer and 40 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 10 miles per hour, in March.

how this survey was made

Soil scientists made this survey to learn what soils are in the survey area, where they are, and how they can be used. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; and the kinds of rock. They dug many holes to study soil profiles. A profile is the sequence of natural layers, or horizons, in a soil. It extends from the surface down into the parent material, which has been changed very little by leaching or by plant roots.

The soil scientists recorded the characteristics of the profiles they studied and compared those profiles with others in nearby counties and in more distant places. They classified and named the soils according to nationwide uniform procedures. They drew the boundaries of the soils on aerial photographs. These photographs show trees, buildings, fields, roads, and other details that help in drawing boundaries accurately. The soil maps at the back of this publication were prepared from aerial photographs.

The areas shown on a soil map are called map units. Most map units are made up of one kind of soil. Some are made up of two or more kinds. The map units in this survey area are described under "General soil map units" and "Detailed soil map units."

While a soil survey is in progress, samples of some soils are taken for laboratory measurements and for engineering tests. All soils are field tested to determine their characteristics. Interpretations of those characteristics may be modified during the survey. Data are assembled from other sources, such as test results, records, field experience, and state and local specialists. For example, data on crop yields under defined management are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it can be used by farmers, woodland managers, engineers, planners, developers and builders, home buyers, and others.

general soil map units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

soil descriptions

1. Mountview-Baxter-Dickson

Undulating and rolling, well drained and moderately well drained soils; on the Highland Rim

This unit consists of broad, undulating to rolling areas. Upland flats are common. Drainageways are shallow, and there are a few shallow basins that collect water after heavy rains. The unit is in the northwestern part of the county. Slope is dominantly less than 15 percent.

The soils in this unit formed in loess and residuum. They are deep. The loess is about 2 or 3 feet thick on upland flats and is considerably thicker in a few shallow basins and along sluggish, meandering drainageways. It is underlain by reddish clayey residuum of limestone. The residuum is exposed at the surface of some steeper side slopes. Limestone bedrock underlies all of the unit at a depth of more than 10 feet.

This unit makes up about 4 percent of the county. It is about 35 percent Mountview soils, 25 percent Baxter soils, 15 percent Dickson soils, and 25 percent soils of minor extent.

The brownish, well drained Mountview soils are on hilltops. The reddish, well drained Baxter soils are on the more rolling parts of the landscape. They contain numerous chert fragments throughout and have a clayey subsoil. The brownish, moderately well drained Dickson soils are on the more nearly level parts of the landscape. They have a fragipan at a depth of 2 to 3 feet.

The soils of minor extent in this unit are mainly the cherty, well drained Bodine soils and the somewhat poorly drained Taft soils.

The soils in this unit have high potential for farming and for urban use. Use of the unit is limited by steep slopes and the high content of chert and rock fragments in some soils.

These soils are among those used mostly for farming in the county. Most farms are mainly in pasture and support beef cattle. The broader ridgetops and wider stream valleys are used for pasture. Areas on the broad upland flats can be cultivated year after year without reducing the productivity of the soil. The main crops are soybeans and tobacco. The acreages of these crops are small. This unit is the largest area of good farmland in the county where urban development is not yet extensive.

The woodland in this unit is mainly poor stands of cutover hardwoods. Because of overcutting and severe damage by fire, replanting is needed in many areas.

Most of this unit has high potential for urban development. In a few small areas, however, slow or moderately slow permeability is a limitation for houses with septic filter fields. The broader ridgetops and wider stream valleys provide good homesites. Residential development is increasing rapidly near the interchanges of Interstate 24.

2. Bodine-Sulphura

Hilly to very steep, somewhat excessively drained, cherty and shaly soils; on the escarpment of the Highland Rim

This unit consists of highly dissected deep, narrow valleys that have very steep side slopes and narrow, winding ridge tops. It has a well developed drainage system that includes a few permanent streams. Most of the unit is on the escarpment of the Highland Rim along the north and west boundaries of the county.

Soils on the narrow ridgetops and the upper part of the steep side slopes formed in residuum of cherty limestone. Soils on the lower part of the steep side slopes formed in residuum of shale and thinly bedded limestone. Soils on the foot slopes formed in materials that have moved downslope from the cherty limestone and shale areas. Depth to rock ranges from about 1 foot to more than 10 feet.

This unit makes up about 25 percent of the county. It is about 55 percent Bodine soils, 20 percent Sulphura soils, and 25 percent soils of minor extent.

Bodine soils are deep, cherty, somewhat excessively drained soils on the narrow ridgetops and the upper part of the steep side slopes. Sulphura soils are moderately deep, shaly, somewhat excessively drained soils on the lower part of the steep side slopes.

The soils of minor extent are mainly the well drained Mountview, Dellrose, and Ocana soils.

This unit has low potential for most types of farming and urban uses. Use of the unit is limited by steep slopes and the high content of chert and rock fragments in the soils. The broader ridgetops and wider stream valleys are used for housing and pastures.

The unit is dominantly in mixed deciduous forest. In most places the woodland is poor stands of cutover hardwoods. Because of overcutting and severe damage by fire, replanting is needed in many areas.

3. Stiversville-Hampshire-Urban land

Undulating to hilly, well drained soils, and Urban land; in the outer part of the Nashville Basin

The dominant landscape of this unit is sloping, low-lying ridges, moderately steep side slopes, and narrow valleys. There are a few limestone outcrops and a few limestone sinkholes throughout the area. The unit is in the southeastern part of the county, dominantly south of the Cumberland River and west of Percy Priest Lake.

These deep soils formed in residuum of phosphatic limestone. They are medium to high in phosphorus. They are generally about 4 to 6 feet thick over thinly bedded limestone bedrock.

This unit makes up about 9 percent of the county. It is about 43 percent Stiversville soils, 18 percent Hampshire soils, 14 percent Urban land, and 25 percent soils of minor extent.

The well drained Stiversville soils are on ridges. They have a surface layer of dark brown loam and a subsoil of reddish brown clay loam. Small weathered fragments of limestone are commonly scattered throughout the soil.

The well drained Hampshire soils are on side slopes below Stiversville soils. They have a brown silt loam surface layer and a strong brown clay subsoil.

Urban land consists of soils that have been covered with buildings, other structures, or streets. Some of the adjacent soils were altered during construction.

The soils of minor extent are mainly the well drained Talbott and Armour soils.

This unit has medium to high potential for most agricultural uses, although little of the acreage is suited to continuous cultivation. Most farmers raise beef cattle or operate dairies. Most of the unit has been cleared. A few areas near the urban fringe are idle.

Most of the unit has high potential for urban development, but in a few small areas the somewhat restricted permeability is a limitation for houses with septic filter fields. Urban land is dominantly residential. There are small areas of shopping centers and industrial developments.

4. Talbott-Rock outcrop

Undulating to hilly, well drained soils, and outcrops of limestone; in the inner part of the Nashville Basin

This unit consists of undulating to hilly areas around Percy Priest Lake and at lower elevations in the Mill Creek area. Drainageways are generally shallow, and many end in sinkholes.

The soils in this unit formed in residuum of limestone in the inner part of the Nashville Basin and are not phosphatic. Generally, they have a thin loamy surface layer and a clayey subsoil. Depth to limestone bedrock ranges from 0 to about 5 feet. Outcrops of limestone are common throughout the unit.

The unit makes up about 11 percent of the county. It is about 44 percent Talbott soils, 21 percent Rock outcrop, and 35 percent soils of minor extent.

Talbott soils have a red clayey subsoil and are well drained. They are moderately deep over limestone bedrock. Much of the Talbott soil is small patches among limestone outcrops.

Soils of minor extent are mostly the shallow, well drained Gladeville soils and the deep, well drained Bradyville and Lomond soils. Some small areas of Urban land are also in the unit.

The unit has medium potential for pasture. Low available water capacity and Rock outcrop make cultivation of these soils impractical. This unit has medium potential for urban uses. Moderately slow permeability and the limited depth to rock are the main soil limitations. Low strength is a limitation for local roads and streets.

Around Percy Priest Lake many areas are used for recreation and some have been subdivided for residential developments. There is also some urban development along the major roads. Some of the remaining land is idle or in a few beef cattle farms.

5. Arrington-Lindell-Armour

Nearly level to gently sloping, well drained and moderately well drained soils; on flood plains and terraces throughout the Nashville Basin

This map unit consists largely of the flood plains of the Cumberland, Stones, and Harpeth Rivers and Mill and Whites Creeks.

These soils are deep and well drained or moderately well drained. They formed in loamy alluvium that washed from soils underlain by both phosphatic and nonphosphatic limestone. They are medium to high in phosphorus and are medium acid or slightly acid throughout.

This unit makes up about 10 percent of the county. It is about 35 percent Arrington soils, 20 percent Lindell soils, 20 percent Armour soils, and 25 percent soils of minor extent.

The dark brown, well drained Arrington soils are on flood plains. The brown, moderately well drained Lindell soils are also on flood plains. The brownish, well drained Armour soils generally are on stream terraces.

The soils of minor extent are mainly the somewhat poorly drained Beason and Newark soils, the moderately well drained Egam soils, and the well drained Sequatchie soils. Some Urban land is also included.

The unit has high potential for farming. Most of the unit is used for row crops, hay, and pasture. Most farmers raise beef cattle or operate dairies.

The unit has low potential for urban development. Flooding is a limitation in much of the unit. There is, however, extensive urban development in a few areas along the Cumberland River, Mill Creek, and Whites Creek near downtown Nashville.

6. Maury-Urban land-Armour

Undulating to rolling, well drained soils, and urban land; in the outer part of the Nashville Basin

This unit is undulating to rolling. Drainageways are distinct and very shallow. The gradients of the long side slopes are generally less than 10 percent. The unit is mainly in the south-central part of the county and in the Hermitage and Old Hickory areas.

These deep soils formed in old alluvium and the underlying residuum of phosphatic limestone. Depth to limestone bedrock is about 5 to 16 feet.

This unit makes up about 12 percent of the county. It is about 40 percent Maury soils , 25 percent Urban land, 10 percent Armour soils, and 25 percent soils of minor extent.

Maury soils are on mainly broad, gently rolling uplands. They have a dark brown silt loam surface layer and a subsoil that is reddish brown silty clay loam in the upper part and yellowish red, firm clay in the lower part.

Urban land consists of areas that have been covered with buildings, other structures, and streets. The Urban land part of this unit is mostly in the downtown area of Nashville and along the major roads leading from the city.

Armour soils generally are below Maury soils on stream terraces and foot slopes, mostly in the valleys along the Cumberland and Harpeth Rivers. They have a dark brown silt loam surface layer and a strong brown to yellowish red silty clay loam subsoil.

The soils of minor extent are mainly the well drained Arrington, Hampshire, and Stiversville soils.

The unit has high potential for farming, but erosion is a hazard if cultivated crops are grown. Most of the farmland is in pasture. A few areas are in soybeans. A few beef cattle and horses are raised. A few acres near the urban fringe are idle. Nearly all the unit has been cleared.

Most of the unit has high potential for urban development, but slope is a limitation for some urban uses. About 25 percent of the unit is in residential and urban areas.

7. Dellrose-Ocana-Humphreys

Nearly level to steep, well drained soils; in the outer part of the Nashville Basin

This unit consists of long, moderately steep to steep hillsides, which slope downward sharply to rolling and undulating foot slopes and stream terraces and narrow, nearly level flood plains along meandering streams (fig. 1). These hillsides connect the Nashville Basin to the Highland Rim. Some of the hillsides are as long as 300 feet.

The soils formed in loamy and dominantly cherty materials that have moved downslope from the brow of the Highland Rim and settled on clay that weathered from level bedded limestone and shale. These soils generally are more than 5 feet thick over phosphatic limestone and contain few to many fragments of chert. They are medium to high in phosphorus and range from slightly acid or neutral on the bottom lands to strongly acid on the uplands.

This unit makes up about 5 percent of the county. It is about 45 percent Dellrose soils, 20 percent Ocana soils, 10 percent Humphreys soils, and 25 percent soils of minor extent.

Dellrose, Ocana, and Humphreys soils are all well drained and cherty. Dellrose soils are on hillsides. Ocana soils are on flood plains and along narrow drainageways. Humphreys soils are on foot slopes and stream terraces below Dellrose soils.

The soils of minor extent are mainly the well drained Arrington soils and the moderately well drained Lindell soils.

This unit has high potential for farming. It has high potential for hay, grasses, and legumes. The soils are mostly in pasture grazed by beef cattle. Most of the soils have medium to high potential for row crops. The soils on the terraces and stream bottoms are well suited to row crops, but those on the uplands generally are too steep.

This unit has low potential for urban development. The soils are highly susceptible to landslides if cuts are made in the steeper slopes (*5*). When the soils become saturated, they tend to slip and slide on the underlying limestone rock or on the clay layer that overlies the limestone. Flooding on the bottom land is a major limitation for urban development. A few residential areas are along major roads. Soils on terraces have high potential for urban development, but their high value for crops needs to be considered before they are put to urban uses.

8. Mimosa-Urban land-Rock outcrop

Undulating to hilly, well drained soils, Urban land, and outcrops of phosphatic limestone; in the outer part of the Nashville Basin

This map unit consists of undulating to hilly areas extending northeasterly from Nashville through

Goodlettsville to the Sumner County boundary. Other areas are in the central and southwestern parts of the county.

The soils in this unit formed in clayey residuum weathered from level bedded phosphatic limestone. Generally, these soils have a thin silt loam surface layer and a clayey subsoil. They are deep to shallow; depth to limestone bedrock ranges from 10 to 65 inches. Outcrops of limestone are common throughout the unit.

This unit makes up about 24 percent of the county. It is about 51 percent Mimosa soils, 16 percent Urban land, 8 percent Rock outcrop, and 25 percent soils of minor extent.

Mimosa soils are deep and well drained and have a clayey subsoil. Urban land is areas that have been covered with buildings, other structures, and streets. It is mostly in downtown Nashville and along major roads. There are very few areas of Rock outcrop on gentler slopes, but steeper slopes are as much as 20 percent outcrops of massive phosphatic limestone.

The soils of minor extent are dominantly the shallow, well drained Barfield soils on the steeper slopes; the deep, well drained Armour soils on foot slopes and terraces; and the deep, moderately well drained Capshaw soils on foot slopes and terraces.

This unit has medium potential for pasture and small grains. Strong slopes and extensive outcrops of rock make cultivation impractical. Some of the unit is in pasture. The steepest and rockiest areas are in cutover forest, dominantly eastern redcedar.

This unit has medium potential for urban uses. The moderate to high shrink-swell potential, areas of Rock outcrop, and limited depth to rock on the steeper slopes are limitations that are difficult to overcome. Some of the more gently sloping areas have high potential for urban uses if central sewage systems are used. Most of this unit around Goodlettsville and Madison is used for residential development.

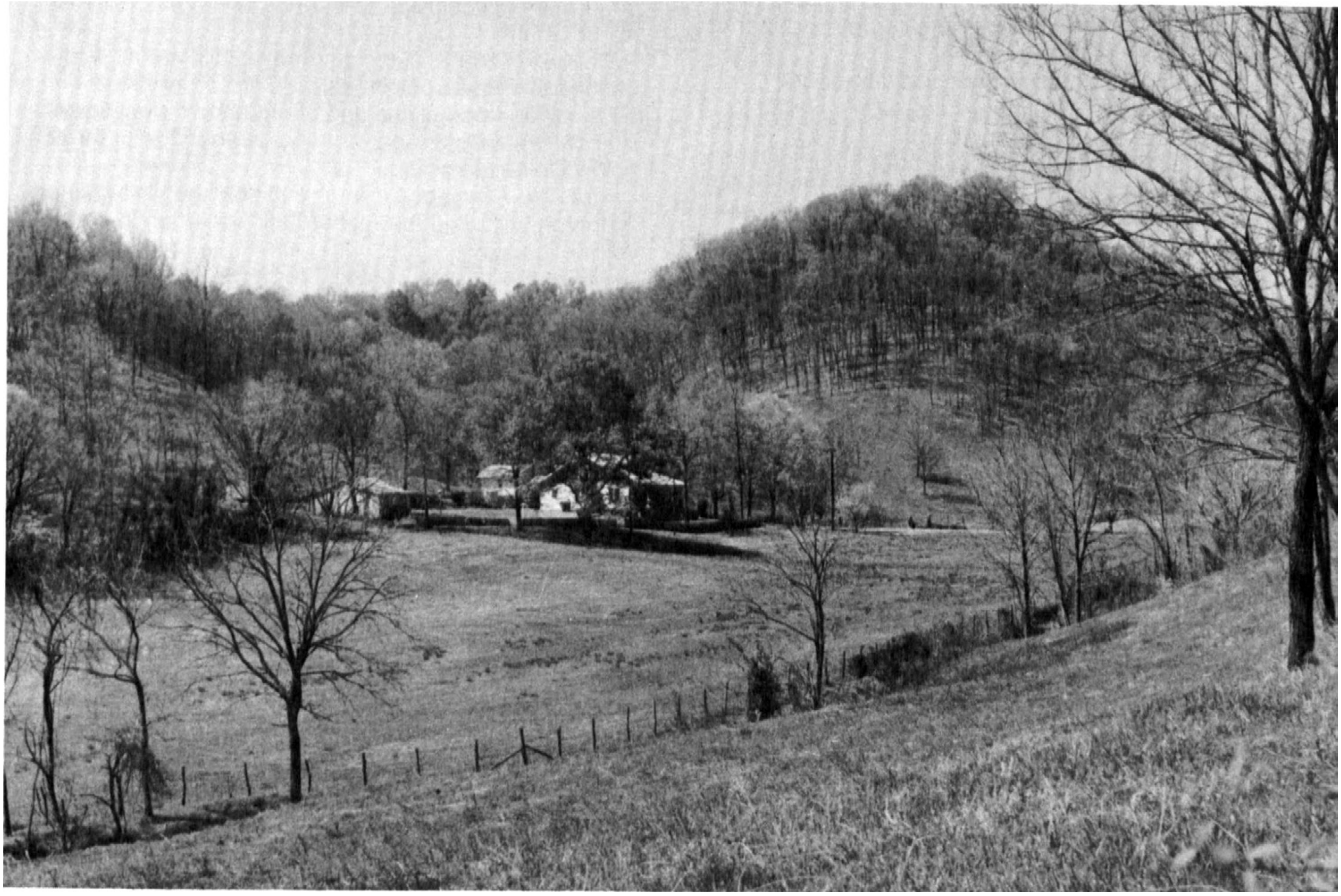

Figure 1.—Typical landscape of general soil map unit 7. Dellrose soils are the steep slopes in the foreground and background, Ocana soils are along the drainageway, and gently sloping Humphreys soils are around the house.

detailed soil map units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and management of the soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Mimosa silty clay, 12 to 25 percent slopes, severely eroded, is one of several phases in the Mimosa series.

Some map units are made up of two or more major soils. These map units are called soil complexes.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Bodine-Sulphura complex is an example.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

soil descriptions

AmB—Armour silt loam, 2 to 5 percent slopes. This deep, gently sloping, well drained soil is on stream terraces and foot slopes, mostly in the valleys along the Cumberland and Harpeth Rivers. Areas are 2 to 120 acres.

Typically, the surface layer is dark brown silt loam about 8 inches thick. The subsoil is friable silty clay loam that extends to a depth of 66 inches. It is strong brown in the upper part and yellowish red and strong brown in the lower part.

This soil is medium acid or strongly acid throughout except for the surface layer in areas that have been limed. Natural fertility is medium to high. Permeability is moderate, and the available water capacity is high. The content of phosphorus is medium or high.

Included with this soil in mapping are a few small areas where the surface layer is light brown. Also included are a few small, intermingled areas of Mimosa soils. Soils that have a weakly developed fragipan are in a very few small, depressional areas.

This Armour soil is highly productive; it is among the most productive in Davidson County. It is well suited to all crops commonly grown in the area. It has high potential for farming and for urban uses. Its high value as cropland should be considered before putting it to other uses. Slope is a limitation for farming but can be easily overcome by good management.

The capability subclass is IIe. The woodland suitability subclass is 2o.

AmC—Armour silt loam, 5 to 12 percent slopes. This deep, sloping, well drained soil is on stream terraces and foot slopes, mostly in the valleys along the Cumberland and Harpeth Rivers. Areas are 2 to 100 acres.

Typically, the surface layer is dark brown silt loam about 8 inches thick. The subsoil is friable silty clay loam that extends to a depth of 66 inches. It is strong brown in the upper part and strong brown and yellowish red in the lower part.

This soil is medium acid or strongly acid throughout except for the surface layer in areas that have been limed. Natural fertility is medium to high. Permeability is moderate, and the available water capacity is high. The content of phosphorus is medium to high.

Included with this soil in mapping are a few small areas where the subsoil is clayey and some areas where the surface layer is light brown. A few small intermingled areas of Mimosa soils are also included.

The potential is medium for row crops and high for small grains, hay, and pasture. Slope is a limitation for cultivated crops. In 3-year cropping systems, the soil is moderately productive of the commonly grown row crops. Row crops can be grown more often if stripcropping or minimum tillage is used.

The potential for urban uses, such as residential building, is high. Slope is a limitation for most uses but can be overcome by good design and installation procedures.

The capability subclass is IIIe. The woodland suitability subclass is 2o.

AmC3—Armour silt loam, 5 to 15 percent slopes, severely eroded. This deep, sloping to moderately steep, well drained soil is on foot slopes and terraces below long hillsides. Areas are 2 to 30 acres. The larger areas are in the valleys along the Cumberland and Harpeth Rivers and their tributaries.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The subsoil is friable silty clay loam that extends to a depth of 66 inches. It is strong brown in the upper part and strong brown and yellowish red in the lower part.

This soil is medium acid or strongly acid throughout except for the surface layer in areas that have been limed. Natural fertility is medium to high. Permeability is moderate, and the available water capacity is high. The content of phosphorus is medium to high.

Included with this soil in mapping are a few small areas where the subsoil is clayey, a few areas where there are rock outcrops, and a few small areas where the surface layer is light brown.

The potential is medium for row crops and high for small grains, hay, and pasture. The potential for cultivated crops is limited by slope and, to a lesser extent, by somewhat poor tilth. Returning large amounts of crop residue to the soil improves tilth. The soil is moderately productive of the commonly grown row crops if a 3-year cropping system is used. Row crops can be grown more often if stripcropping or minimum tillage is used.

The potential for urban uses, such as residential building, is high. Slope is a limitation for most uses but can be overcome by good design and installation procedures.

The capability subclass is IVe. The woodland suitability subclass is 2o.

Ar—Arrington silt loam. This deep, well drained, nearly level soil is on flood plains of creeks and rivers, along narrow drainageways, and in depressions in the Nashville Basin. Areas are 5 to 300 acres. Slopes range from 0 to 3 percent.

Typically, the surface layer is dark brown silt loam 35 inches thick. The subsoil extends to a depth of 50 inches and is dark yellowish brown, friable silt loam. The underlying material to a depth of 65 inches is brown, friable silt loam with brownish mottles.

This soil is slightly acid or neutral. Natural fertility is medium to high. In most areas, the content of phosphorus is medium to high. Permeability is moderate, and the available water capacity is high. The root zone is deep and is easily penetrated by the roots. The soil has good tilth and can be worked throughout a wide range of moisture conditions. It is subject to occasional, very brief periods of flooding in winter and early spring.

Included with this soil in mapping are a few small areas of a soil that has a silty clay or clay subsoil and is moderately well drained. Also included are a few areas where the surface layer and subsoil are fine sandy loam and some areas where fragments of chert are common throughout the soil.

The potential is high for most types of farming. This Arrington soil is one of the most productive soils in Davidson County. The occasional flooding does not seriously interfere with farming but is a major limitation to urban uses such as residential developments. The high value of the soil for crops needs to be considered before it is put to other uses.

The capability class is I. The woodland suitability subclass is 2o.

BbD—Barfield-Rock outcrop complex, 5 to 20 percent slopes. This map unit consists of small areas of shallow, sloping to moderately steep, well drained Barfield soil intermingled with outcrops of limestone rock. It is on uplands in the Nashville Basin. Areas are 10 to 300 acres.

Barfield soils make up about 55 to 70 percent of each mapped area. Typically, the surface layer is very dark grayish brown silty clay loam about 8 inches thick. The subsoil extends to a depth of 15 inches. It is very dark grayish brown and brown, firm clay. Below this is hard limestone bedrock. In a few places the surface layer is silty clay.

Rock outcrop makes up about 20 to 45 percent of each mapped area. Typically, the rock is level-bedded limestone.

Barfield soils range from neutral in the upper part to mildly alkaline in the lower part next to bedrock. Natural fertility is medium. Permeability is moderately slow, and the available water capacity is very low. The shrink-swell potential is high.

Included in mapping are a few small areas of soils that are less than 10 inches thick over rock and a few that are more than 20 inches thick. Also included are a few areas where the subsoil is yellowish red.

The potential is low for farming and urban uses. Rock outcrop, stones on the surface, shallowness over rock, and high shrink-swell potential are limitations that are difficult to overcome. The outcrops of limestone commonly extend 1 foot to 3 feet above the soil surface. The soil is not deep enough to accommodate septic tank filter fields. For residential areas with central sewage, blasting in hard limestone for excavations, foundations, and road construction is required.

The capability subclass is VIs. The woodland suitability subclass is 4d.

BbE—Barfield-Rock outcrop complex, 20 to 35 percent slopes. This map unit consists of shallow, well drained Barfield soils and outcrops of limestone rock. This unit is on uplands in the Nashville Basin. Areas are 10 to 100 acres.

Barfield soils make up about 50 to 70 percent of each mapped area. Typically, the surface layer is very dark grayish brown silty clay loam about 8 inches thick. The subsoil is very dark grayish brown and brown, firm clay to a depth of 15 inches. Below this is hard limestone bedrock. In a few places the surface layer is silty clay.

Rock outcrop makes up about 20 to 45 percent of each mapped area. The rock is hard limestone bedrock.

Barfield soils range from neutral in the upper part to mildly alkaline in the lower part. Natural fertility is medium. Permeability is moderately slow, and the available water capacity is very low. The shrink-swell potential is high.

Included in mapping are a few small areas where the silty clay loam surface layer is underlain by bedrock. Also included are small areas of soils that are more than 20 inches thick over bedrock.

The potential is very low for farming and urban uses. Rock outcrop, stones on the surface, shallowness over rock, high shrink-swell potential, and steepness of slope are limitations that are very difficult to overcome. Road construction requires blasting and removing hard limestone rock.

The capability subclass is VIIs. The woodland suitability subclass is 4d.

BcC—Baxter cherty silt loam, 3 to 12 percent slopes. This deep, gently sloping to sloping, well drained soil is on the uplands of the Highland Rim. Areas are 5 to 100 acres.

Typically, the surface layer is brown cherty silt loam about 8 inches thick. The subsoil extends to a depth of 72 inches. The upper 6 inches is yellowish red, friable cherty silty clay loam, and the rest is yellowish red or red, firm cherty clay.

This soil is strongly acid or very strongly acid throughout except on the surface layer in areas that have been limed. Natural fertility is low. Permeability is moderate, and the available water capacity is moderate. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas where the upper 1 foot or 2 feet of the subsoil is yellowish brown silt loam. Also included are a few small areas of soils that are moderately well drained and have a fragipan. Small spots of eroded soils that have a reddish cherty silty clay loam surface layer are included in most units.

The potential is medium for farming. It is limited by the small size and irregular shape of the areas, the slope, and the steep slopes of adjacent soils. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage and cover crops, including grasses and legumes, reduce runoff and erosion.

The potential is high for urban use. The moderate shrink-swell potential is a limitation but can be overcome by good design and careful installation procedures.

The capabilty subclass is IIIe. The woodland suitability subclass is 2o.

BcD—Baxter cherty silt loam, 12 to 20 percent slopes. This deep, moderately steep, well drained soil is on long, narrow hillsides of the Highland Rim. Areas are 10 to 50 acres.

Typically, the surface layer is brown cherty silt loam about 8 inches thick. The subsoil extends to a depth of 72 inches. The upper 6 inches is yellowish red, friable cherty silty clay loam, and the rest is yellowish red or red, firm cherty clay.

This soil is strongly acid or very strongly acid throughout except for the surface layer in areas that have been limed. Natural fertility is low. Permeability is moderate, and available water capacity is moderate. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas of soils that are very cherty throughout.

The potential is low for row crops and medium for small grains, hay, and pasture. Potential is limited by the small size of the areas, the strong slope, and the steep cherty soils adjacent to this soil. Row crops can be grown about once every 4 to 6 years and perhaps more often if stripcropping or minimum tillage is used. Small grains and the common hay and pasture plants, such as tall fescue, white clover, and annual lespedeza, are moderately productive on this soil.

The potential is medium for urban uses. Slope is the main limitation for most uses. The slope limitation can be overcome by good design and installation procedures.

The capability subclass is IVe. The woodland suitability subclass is 2r.

Be—Beason silt loam. This deep, nearly level, somewhat poorly drained soil is on terraces mainly along the Cumberland River. A few areas are along upland drainageways. Areas are 3 to 60 acres. Slopes range from 0 to 3 percent.

Typically, the surface layer is very dark gray silt loam about 8 inches thick. The subsoil is yellowish brown, friable to firm silty clay loam to a depth of 41 inches. It is grayish brown, firm clay mottled in shades of gray and brown to a depth of 51 inches. The underlying material is mottled, friable silty clay loam.

This soil is strongly acid or very strongly acid except for the surface layer in areas that have been limed. Natural fertility is low to medium. Permeability is moderately slow, and the available water capacity is moderate to high. Runoff is slow, and the water table is near the surface in late winter and early spring. Flooding is common. In spring, tillage is sometimes delayed because of wetness and flooding.

Included with this soil in mapping are a few small areas where the subsoil is silt loam. Also included are a few small areas of moderately well drained soils.

The potential is medium for farming. Row crops and small grains can be grown every year, although flooding and wetness can be problems. The potential is high for pasture.

The potential is low for urban development. Flooding and wetness are the main limitations.

The capabilty subclass is IIw. The woodland suitability subclass is 3w.

BoD—Bodine cherty silt loam, 5 to 20 percent slopes. This deep, sloping to moderately steep, somewhat excessively drained soil is on uplands of the Highland Rim. Areas are 5 to 40 acres.

Typically, the surface layer is dark grayish brown and pale brown cherty silt loam about 5 inches thick. The subsoil extends to a depth of 65 inches. It is yellowish brown and strong brown, friable cherty silt loam to a depth of 20 inches and strong brown, friable very cherty silty clay loam below that depth.

This soil is strongly acid to extremely acid except for the surface layer in areas that have been limed. Natural fertility is low. Permeability is moderately rapid, and the available water capacity is low.

Included with this soil in mapping are a few small areas where only a few fragments of chert are in the subsoil. Also included are a few small areas of Dellrose and Baxter soils.

The potential is low for farming. The small size and irregular shape of the areas, the strong slopes, chertiness, and low available water capacity limit the use of this soil for farming.

The potential is medium to high for most urban uses. Slope is a limitation for most uses but can be overcome by proper design and installation. The high content of chert and the low available water capacity make it difficult to establish and maintain a lawn on this soil.

The capability subclass is VIs. The woodland suitability subclass is 3f.

BsE—Bodine-Sulphura complex, 20 to 50 percent slopes. This map unit consists of deep, somewhat excessively drained Bodine soils and moderately deep, somewhat excessively drained Sulphura soils. These steep to very steep soils are on uplands along the Highland Rim escarpment. Bodine soils are on the upper parts of the slopes, and Sulphura soils are on the lower parts. Gullies have formed, especially in some areas on the lower parts of the hillsides. Areas are 10 to 200 acres.

Bodine soils make up about 55 to 65 percent of each mapped area. Typically, the surface layer is dark grayish brown and pale brown cherty silt loam about 5 inches thick. The subsoil extends to a depth of 65 inches. It is yellowish brown and strong brown friable cherty silt loam to a depth of 20 inches, and strong brown, friable very cherty silty clay loam below that depth.

Sulphura soils make up about 25 to 30 percent of each mapped area. Typically, the surface layer is dark grayish brown and brown shaly silt loam about 5 inches thick. The subsoil is dark yellowish brown, friable shaly silt loam in the upper part and yellowish brown, friable very shaly silt loam in the lower part. Shale bedrock is at a depth of 26 inches.

Bodine soils range from very strongly acid to extremely acid, and Sulphura soils from slightly acid to strongly acid except for the surface layer in areas that have been limed. Natural fertility is low. Permeability is moderate to moderately rapid, and the available water capacity is low.

Included in mapping are a few small areas where only a few fragments of chert are in the subsoil. Also included are some areas of soils that are more than 40 inches thick over shale bedrock and a few that are less than 20 inches thick over rock. In a few small areas limestone or shale rock is exposed at the surface.

The potential is low for farming and urban uses. The steep to very steep slope of both soils and the moderate depth of the Sulphura soils are limitations that are difficult to overcome.

The capability subclass is VIIs. Bodine soils are in woodland suitability subclass 3f. Sulphura soils are in woodland suitability subclass 5d.

BvB—Bradyville silt loam, 2 to 5 percent slopes. This deep, gently sloping well drained soil is on uplands in the inner part of the Nashville Basin. Most areas are 6 to 14 acres, but a few are as large as 45 acres.

Typically, the surface layer is dark yellowish brown silt loam about 7 inches thick. The subsoil is yellowish red, friable silty clay loam in the upper part and yellowish red, firm clay in the lower part. Hard limestone bedrock is at a depth of 55 inches.

This soil is medium or strongly acid throughout except for the surface layer in limed areas and the layer just above bedrock, which ranges to mildly alkaline. Natural fertility is medium. Permeability is moderate, and the available water capacity is moderate. Tilth is fairly good, and the soil can be worked throughout a moderate range of moisture conditions. The root zone is deep and is easily penetrated by roots. The shrink-swell potential is moderate. Depth to hard limestone bedrock is 40 to 60 inches.

Included with this soil in mapping are a few small areas where the subsoil is silty clay loam. Also included are a few small areas of Talbott soils and a few intermingled areas of Rock outcrop. In eroded areas the surface layer is silty clay loam or finer in texture.

The potential is high for small grains, hay, and pasture but only medium for row crops. Potential is limited by slope, moderate available water capacity, and the small size and irregular shape of many areas.

The potential for urban uses is medium. The low strength of the subsoil and the moderate shrink-swell potential are limitations for local roads and streets. The moderate shrink-swell potential is a limitation for building sites. These limitations can be overcome by good design and proper installation. Where deep cuts or excavations for basements, foundations, or road construction are required, blasting in the hard limestone bedrock may be needed.

The capability subclass is IIe. The woodland suitability subclass is 3o.

ByB—Byler silt loam, 2 to 5 percent slopes. This deep, gently sloping, moderately well drained soil has a fragipan. It is on concave terraces and uplands in the outer part of the Nashville Basin. Areas are 3 to 65 acres.

Typically, the surface layer is brown silt loam about 9 inches thick. The subsoil above the fragipan is yellowish brown friable silty clay loam. In the fragipan, between depths of 24 and 44 inches, it is pale brown, firm and brittle silty clay loam. Below the pan to a depth of 65 inches is light brownish gray, firm, mottled clay.

This soil is medium to strongly acid throughout except for the surface layer in areas that have been limed. Natural fertility is medium. The available water capacity is moderate. Permeability is moderate above the fragipan and slow in the pan. The fragipan restricts roots.

Included in mapping are a few small areas of soils that are somewhat poorly drained. Also included are a few small intermingled areas of Armour, Mimosa, and Stemley soils.

The potential is high for small grains and pasture. Low available moisture during July, August, and September limits production of row crops and hay. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown.

The potential for urban uses is medium. Wetness and slow permeability are major limitations to uses such as residential buildings that use septic tank filter fields. Seasonal wetness and low strength are limitations for local roads and streets. These limitations can be partly overcome by good design and installation.

The capability subclass is IIe. The woodland suitability subclass is 3o.

CaB—Capshaw silt loam, 2 to 5 percent slopes. This deep, gently sloping, moderately well drained soil is on stream terraces and foot slopes. It is mostly in the outer part of the Nashville Basin. Areas are 3 to 15 acres.

Typically, the surface layer is brown silt loam about 5 inches thick. The subsoil extends to a depth of 45 inches. It is yellowish brown, friable silty clay loam and firm clay in the upper part and yellowish brown, firm clay with many light brownish gray mottles in the lower part. The underlying material is light yellowish brown, firm clay. Limestone bedrock is at a depth of 49 inches.

This soil is strongly acid to medium acid in the surface layer and ranges to mildly alkaline in the lower layer. Natural fertility is low to medium. Permeability is slow, and the available water capacity is moderate. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas of well drained soils. Also included are eroded soils that have a silty clay loam surface layer.

The potential is medium for row crops and high for hay and pasture. It is limited by the small size and irregular shape of many areas. Row crops can be grown in a 3-year cropping system or perhaps more often if stripcropping and minimum tillage are used.

The potential is medium for urban development with sewers but is low for residential development with septic tank absorption fields because the soil is slowly permeable. Low strength and moderate shrink-swell potential are limitations for local roads and streets but can be overcome by good design and careful installation procedures.

The capability subclass is IIe. The woodland suitability subclass is 3o.

DeD—Dellrose cherty silt loam, 12 to 20 percent slopes. This deep, moderately steep, well drained soil is on upland hillsides below the escarpment of the Highland Rim that leads down to the Nashville Basin. Areas are 5 to 150 acres.

Typically, the surface layer is dark brown cherty silt loam about 6 inches thick. The subsoil extends to a depth of 61 inches. The upper part is brown and yellowish brown, friable cherty silt loam. The lower part is yellowish brown, firm clay.

This soil is medium acid or strongly acid except for the surface layer in areas that have been limed. Natural fertility is medium. Permeability is moderately rapid, and the available water capacity is moderate.

Included with this soil in mapping are a few small areas where the surface layer is pale brown and the subsoil is more than 35 percent chert fragments by volume. Also included are a few small areas of Mimosa and Sulphura soils.

The potential is medium to low for row crops and small grains. Strong slopes and the irregular shape of areas are limitations. The potential is high for hay crops and pasture.

The potential for urban uses is low. The soil is highly susceptible to landslides if cuts are made in the slopes (fig. 2). When the soil becomes saturated, it tends to slip and slide on the underlying limestone rock or on the dense clay layer that overlies the limestone.

The capability subclass is IVe. The woodland suitability subclass is 2o.

DeE—Dellrose cherty silt loam, 20 to 40 percent slopes. This deep, steep to very steep, well drained soil is on hillsides immediately below the escarpment of the Highland Rim. These slopes connect the Highland Rim with the lower lying Nashville Basin. Areas are 5 to 25 acres.

Typically, the surface layer is dark brown cherty silt loam about 6 inches thick. The subsoil is brown and yellowish brown, friable cherty silt loam to a depth of 61 inches and yellowish brown, very firm clay to a depth of 74 inches.

This soil is medium acid or strongly acid except for the surface layer in areas that have been limed. Natural fertility is moderate. Permeability is moderately rapid, and the available water capacity is moderate.

Included in mapping are a few small areas where the surface layer is pale brown and the subsoil is more than 35 percent chert fragments. Also included are a few small areas of soils that have a clay subsoil and a few of soils that are less than 40 inches thick over rock. A few deep gullies have formed on long narrow valley walls.

The potential is low for farming. Steep slopes are a limitation. The soil is highly productive of grasses and legumes for pasture, but the steep slope makes maintenance and renovation of pasture difficult.

The potential for urban uses is low. The soil is highly susceptible to landslides if cuts are made in the slopes. When the soil becomes saturated, it tends to slip and

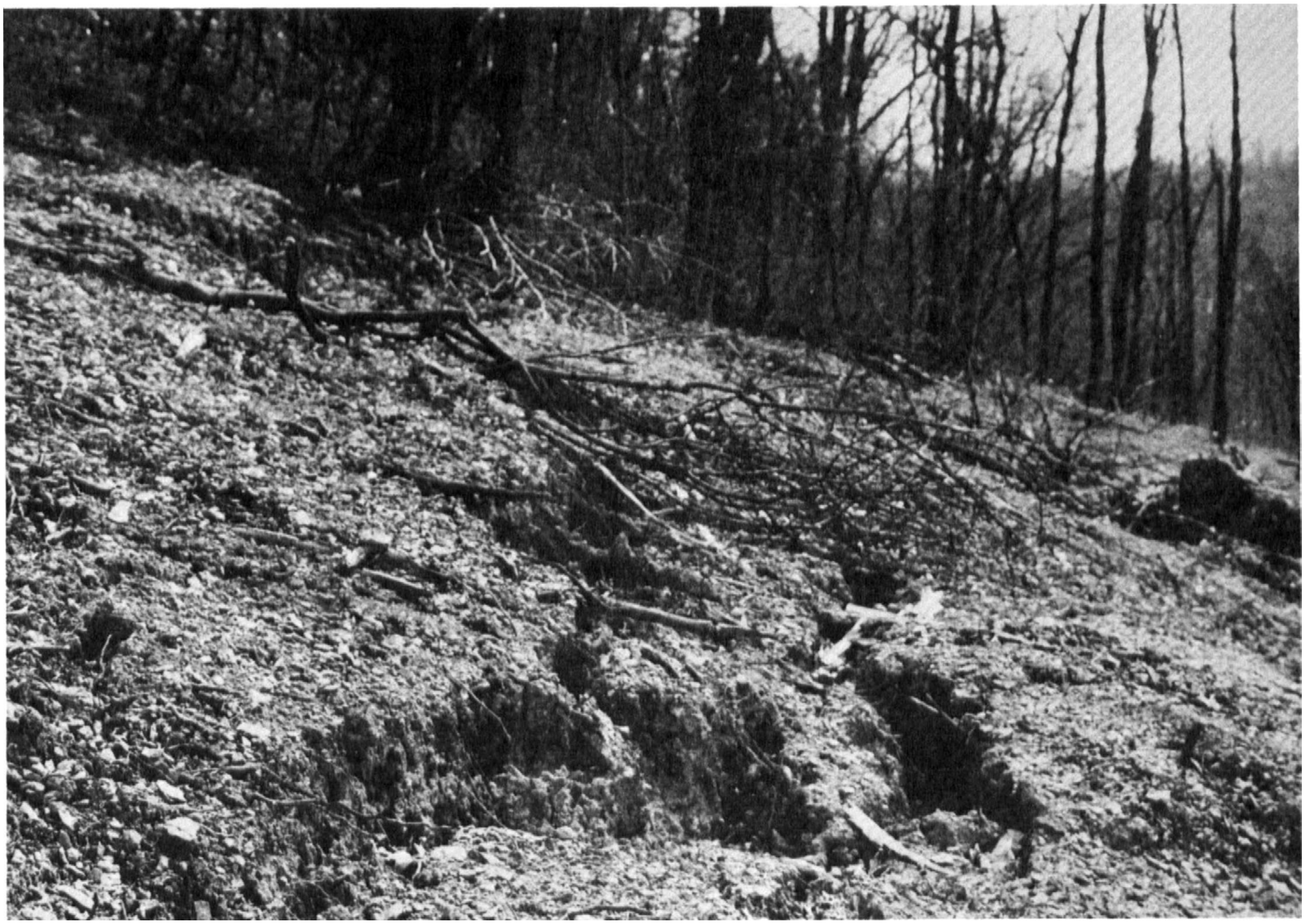

Figure 2.—Landslide on Dellrose cherty silt loam, 12 to 20 percent slopes.

slide on the underlying limestone rock or on the dense clay layer that overlies the limestone.

The capability subclass is VIe. The woodland suitability subclass is 2r.

DkB—Dickson silt loam, 1 to 4 percent slopes. This deep, nearly level to gently sloping, moderately well drained soil has a fragipan. It is on moderately broad ridges on the Highland Rim. Areas are 3 to 60 acres.

Typically, the surface layer is brown silt loam about 8 inches thick. The subsoil extends to a depth of 65 inches. Above a depth of 25 inches it is yellowish brown, friable silt loam and silty clay loam. From 25 to 44 inches, it is a yellowish brown, firm and brittle silt loam fragipan mottled in shades of yellow, brown, and gray. Below the pan, it is yellowish red, firm cherty clay.

This soil is strongly acid to very strongly acid except for the surface layer in limed areas. Natural fertility is low. Permeability is moderate above the fragipan and moderately slow to slow in the pan. The available water capacity is low. Good tilth can be maintained by returning crop residue to the soil.

Included in mapping are a few small areas of soil that do not have a fragipan and are well drained. Also included are a few small areas of somewhat poorly drained soils.

The potential is medium for farming and urban uses. It is limited mainly by moderately slow to slow permeability and by a seasonally perched water table above the fragipan. Crops that are highly sensitive to short periods of wetness should be grown only where the slope provides adequate lateral drainage. The soil is well suited to the commonly grown row crops, such as corn, soybeans, and vegetables; small grains; and hay and pasture plants, such as tall fescue, white clover, and annual lespedeza (fig. 3).

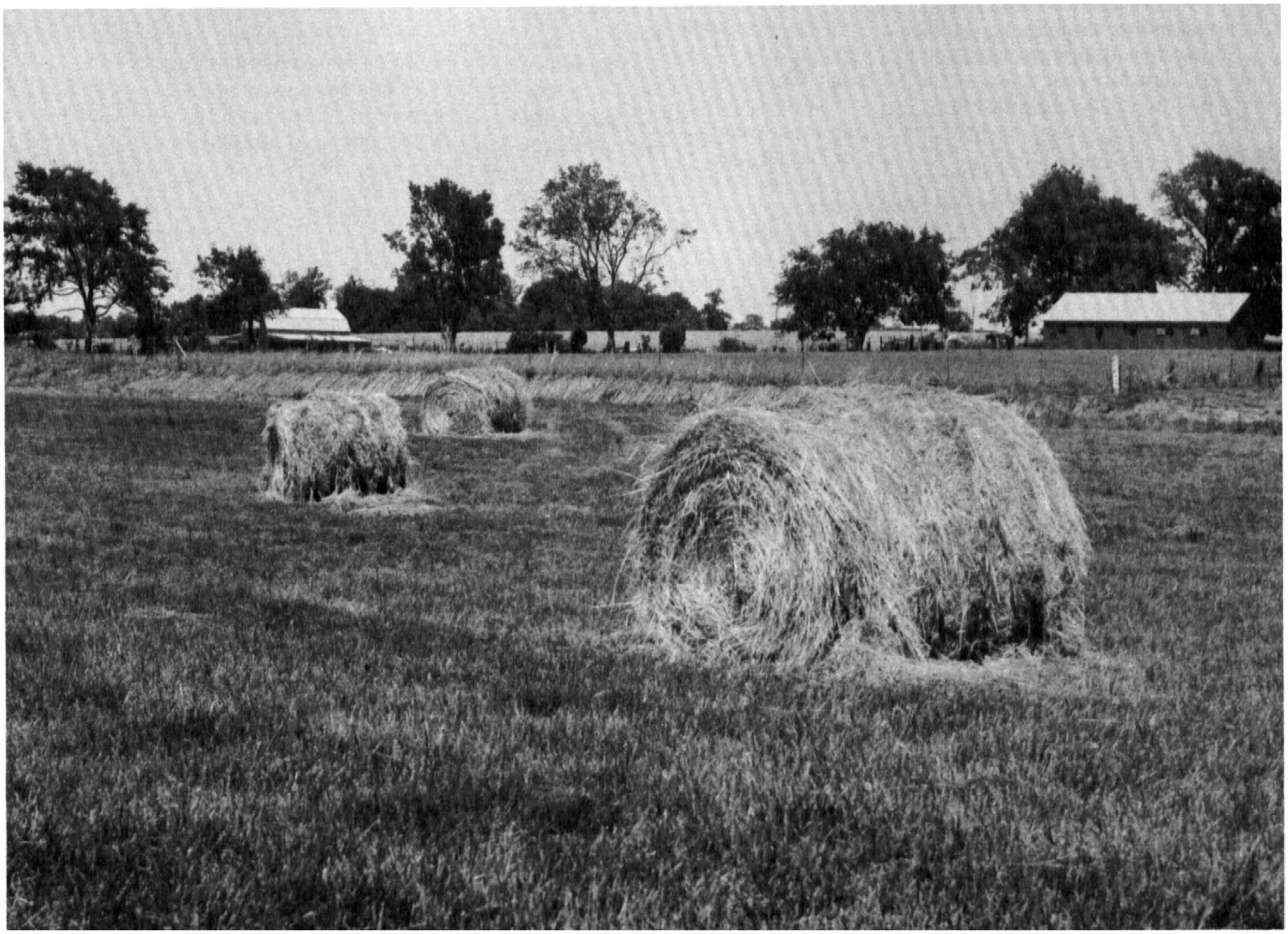

Figure 3.—Dickson silt loam, 1 to 4 percent slopes, is well suited to hay.

The moderately slow to slow permeability is a limitation for residential buildings that use septic tank filter fields. Where better sites are not available, this limitation can possibly be overcome by expanding the absorption field and by using dual field line systems.

The capability subclass is IIe. The woodland suitability subclass is 3o.

Eg—Egam silty clay loam. This deep, nearly level, moderately well drained soil is on flood plains and in depressions. Much of the acreage is on the flood plains of the Cumberland River. Areas are 10 to 65 acres. Slopes range from 0 to 3 percent.

Typically, the surface layer is dark brown and very dark grayish brown silty clay loam about 22 inches thick. The subsoil to a depth of 75 inches is very dark grayish brown and dark brown, firm silty clay and silty clay loam.

The soil is neutral to medium acid. Natural fertility is medium. Permeability is moderately slow, and the available water capacity is high. This soil is subject to occasional flooding in winter and spring. The shrink-swell potential is moderate.

Included in mapping are a few small areas of soils that have a loamy subsoil. In a few small areas the surface layer is fine sandy loam or loam.

The potential is high for row crops and small grains. It is slightly limited by flooding. It is high for hay and pasture.

The potential is low for urban development. Flooding presents a major restriction to urban development. The flooding limitation is difficult to overcome. Low strength and the moderate shrink-swell potential are limitations for the construction of local roads.

The capability subclass is IIw. The woodland suitability subclass is 2o.

GdC—Gladeville flaggy silty clay loam, 5 to 15 percent slopes. This shallow, sloping to moderately steep, well drained soil is in the Nashville Basin on uplands that have bare or nearly bare rocky areas called "glades" (fig. 4). Areas are 3 to 200 acres.

Typically, the surface layer is very dark grayish brown and dark brown flaggy silty clay loam about 8 inches thick. The substratum, to a depth of 10 inches, is brown, firm flaggy clay. Hard, thin-bedded limestone bedrock is at a depth of 10 inches.

This soil is neutral through moderately alkaline. Natural fertility is medium to high. Permeabililty is moderate, and the available water capacity is very low. The shrink-swell potential is moderate.

Included in mapping are a few small areas of soils that are more than 10 inches thick over rock and contain only a few rock fragments. Also included are a few intermingled areas of Barfield and Talbott soils and outcrops of rock.

The potential is very low for farming and urban uses. The main limitations, shallowness over rock and moderate shrink-swell potential, are difficult to overcome. The vegetation is mainly redcedar and a few scattered hackberry.

The capability subclass is VIIs. The woodland suitability subclass is 5x.

HmC—Hampshire silt loam, 5 to 12 percent slopes. This deep, sloping, well drained soil is on the tops and sides of low hills in the outer part of the Nashville Basin. Areas are 5 to 70 acres.

Typically, the surface layer is brown silt loam about 5 inches thick. The subsoil extends to a depth of 45 inches. The upper part is strong brown, friable silty clay loam, and the lower part is strong brown and yellowish brown, firm clay. The underlying material is loam weathered from phosphatic limestone. Phosphatic limestone bedrock is at a depth of 53 inches.

This soil is medium acid to very strongly acid except for the surface layer in limed areas and the layer just above bedrock. Natural fertility is medium to high. Permeability is moderate, and the available water capacity is moderate. The shrink-swell potential is moderate. Depth to hard limestone bedrock is 40 to 65 inches. The content of phosphorus is medium to high.

Included in mapping are some small areas of soils that are less than 40 inches thick over bedrock and a few of soils that are more than 65 inches thick over rock. In included eroded areas, the surface layer is silty clay loam or finer in texture. Also included are a few small areas where the subsoil is loamy.

The potential is medium for row crops. The moderate available water capacity, clayey subsoil, and slope are limitations. Potential is high for small grains, hay, and pasture.

The potential for most urban uses is medium. The moderate shrink-swell potential and depth to bedrock are limitations for uses such as residential building and road construction. Low strength is an additional limitation for local roads and streets. These limitations can be overcome by good design, layout, and installation. Where deep excavations for basements, foundations, and road construction are required, blasting in hard limestone bedrock may be needed.

The capability subclass is IVe. The woodland suitability subclass is 3o.

HmD—Hampshire silt loam, 12 to 20 percent slopes. This deep, moderately steep, well drained soil is on uplands in the outer part of the Nashville Basin. Areas are 5 to 120 acres.

Typically, the surface layer is brown silt loam about 5 inches thick. The subsoil extends to a depth of 45 inches. The upper part is strong brown, friable silty clay loam, and the lower part is strong brown and yellowish brown, firm clay. The underlying material is loam weathered from phosphatic limestone. Phosphatic limestone bedrock is at a depth of 53 inches.

This soil is medium acid to very strongly acid except for the surface layer in limed areas and the soil layer just above bedrock. Natural fertility is medium to high. Permeability is moderate, and the available water capacity is moderate. The shrink-swell potential is moderate. Depth to hard limestone bedrock is 40 to 65 inches. The content of phosphorus is medium to high.

Included in mapping are some small areas where the subsoil is loamy. Also included are a few small areas of soils that are less than 40 inches thick over bedrock and few of soils that are more than 65 inches thick.

The potential is low for small grains. Slopes, the erosion hazard, and moderate available water capacity are limitations. The potential is medium to high for hay crops and pasture.

The potential for urban uses is medium. The strong slopes, moderate shrink-swell potential, and depth to bedrock are major limitations to uses such as residential buildings, industrial complexes, and road construction. Low strength is an additional limitation for local roads and streets. These limitations can be partly overcome by good design, layout, and installation. Where deep excavations for basements, foundations, and road construction are required, blasting in hard limestone bedrock may be needed.

The capability subclass is VIe. The woodland suitability subclass is 3o.

HuB—Humphreys cherty silt loam, 1 to 4 percent slopes. This deep, nearly level to gently sloping, well drained soil is on low terraces and foot slopes in the outer part of the Nashville Basin. Areas are 5 to 70 acres.

Typically, the surface layer is dark brown cherty silt loam 8 inches thick. The subsoil, to a depth of 55 inches, is brown, friable cherty silty clay loam. The substratum to a depth of 62 inches is yellowish brown, very friable cherty loam.

The soil is medium acid to very strongly acid except for the surface layer in limed areas. Natural fertility is

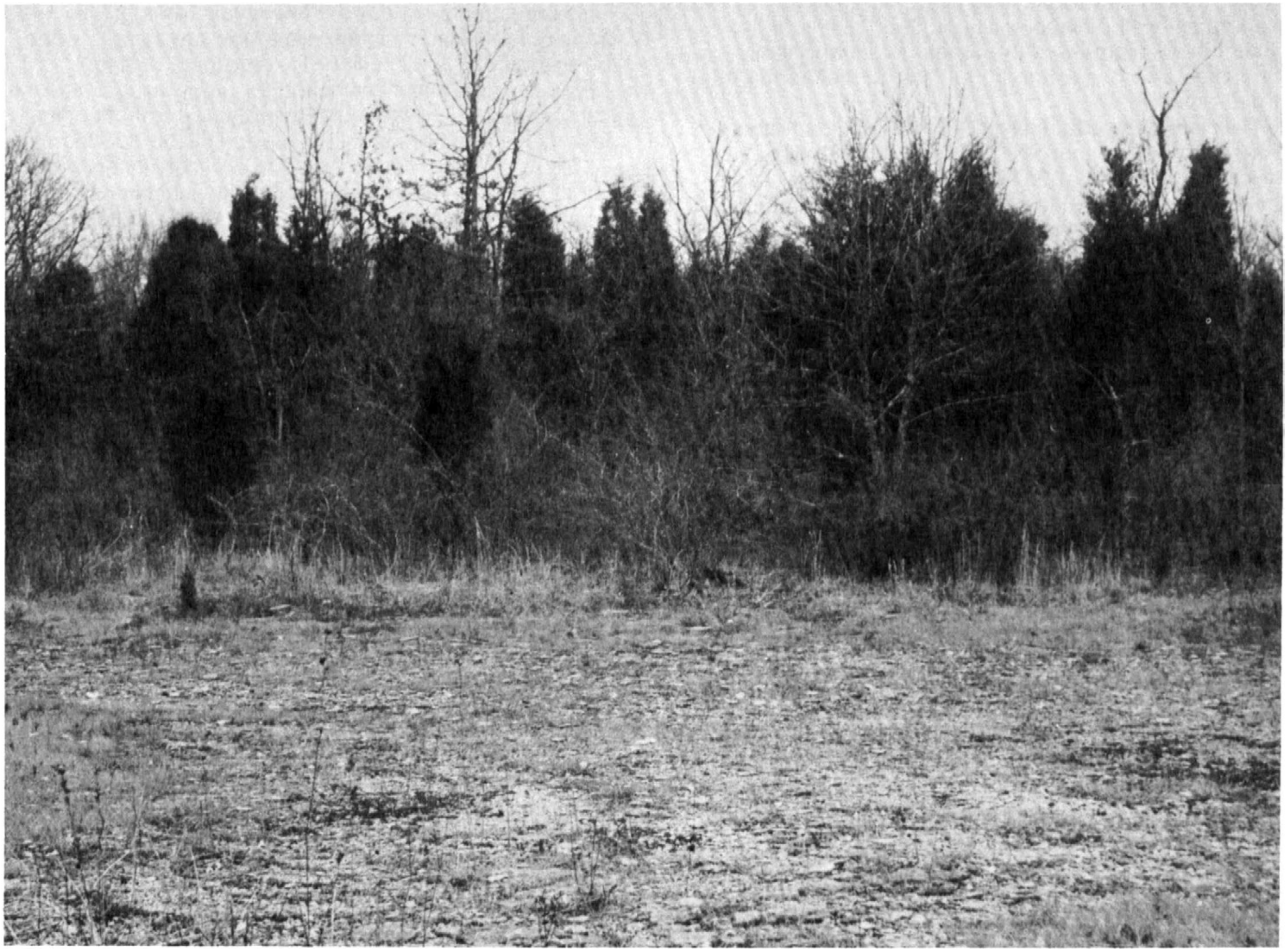

Figure 4.—A nearly bare, rocky place in Gladeville flaggy silty clay loam, 5 to 15 percent slopes.

medium. Permeability is moderately rapid, and the available water capacity is moderate.

Included with this soil in mapping are a few small areas where the subsoil is silt loam that contains very few fragments of chert. Also included are a few small areas of moderately well drained soils that have a weakly developed fragipan.

The potential is high for row crops, small grains, hay, and pasture. Row crops and small grains can be grown every year under conservation management, including the use of cover crops, stripcropping, terracing, or rotation cropping.

The potential for urban uses is high. There are few limitations for urban development. The possibility of overflow should be checked before putting this soil to uses such as residential development.

The capability subclass is IIe. The woodland suitability subclass is 2o.

Ld—Lindell silt loam. This deep, nearly level, moderately well drained soil is on flood plains of the Cumberland, Harpeth, and Stones Rivers and their tributaries. Areas are 5 to 200 acres. Slopes range from 0 to 3 percent.

Typically, the surface layer is brown silt loam about 7 inches thick. The subsoil extends to a depth of 52 inches. To a depth of 26 inches it is brown, friable silt loam mottled in shades of brown, and to a depth of 52 inches it is dark grayish brown or grayish brown friable silt loam or silty clay loam mottled in shades of brown and gray. The substratum to a depth of 62 inches is grayish brown, friable silty clay loam mottled in shades of brown and gray.

This soil is neutral to medium acid. Natural fertility is medium to high. Permeability is moderate, and the available water capacity is high. The content of phosphorus is medium to high. The soil is subject to occasional flooding of brief duration during winter.

Included in mapping are a few small areas of well drained soils and a few areas of somewhat poorly drained soils.

The potential is high for row crops, small grains, hay, and pasture. Flooding occurs occasionally but is not long or frequent enough to seriously interfere with farming.

The potential is low for urban uses. It is limited by flooding and seasonal wetness.

The capability subclass is IIw. The woodland suitability subclass is 2w.

Ln—Lindell-Urban land complex. This unit consists of deep, moderately well drained Lindell soils and Urban land on the nearly level flood plains of the Cumberland, Harpeth, and Stones Rivers. Most of the acreage of this complex is in areas of residential development, shopping centers, industrial sites, schools, and recreation facilities. Slopes range from 0 to 3 percent. Areas are 5 to 40 acres.

About 40 to 60 percent of each mapped area is Lindell soils. This part consists mostly of yards, gardens, and vacant lots where the soil has not been significantly disturbed. The other 30 to 50 percent of each mapped area consists mostly of house sites, driveways, roads, and industrial buildings. Many of the urban sites were filled before construction to protect them from flooding.

Typically, the surface layer of the Lindell soil is brown silt loam about 7 inches thick. The subsoil to a depth of 26 inches is brown, friable silt loam mottled in shades of brown. The lower part of the subsoil extends to a depth of 52 inches. It is dark grayish brown or grayish brown, friable silt loam or silty clay loam mottled in shades of brown and gray. The substratum to a depth of 62 inches is grayish brown, friable silty clay loam mottled in shades of brown and gray.

Lindell soils are medium to high in content of phosphorus. They are neutral to medium acid. Natural fertility is medium to high. Permeability is moderate. The available water capacity is high. During winter the soil is subject to occasional flooding of brief duration.

Included in mapping are a few small areas of well drained soils. Also included are a few small areas where the texture of the subsoil is silty clay loam or finer.

Flooding is a major restriction for urban uses. Because many areas are not adequately protected from flooding, businesses and homes may occasionally be flooded.

This map unit is not assigned to a capability subclass. Lindell soils are in woodland suitability subclass 2w. Urban land is not assigned to a woodland suitability subclass.

LoB—Lomond silt loam, 2 to 5 percent slopes. This deep, gently sloping, well drained soil is on the uplands in the inner part of the Nashville Basin. Areas are 3 to 70 acres.

Typically, the surface layer is dark brown silt loam about 9 inches thick. The subsoil is yellowish red, friable silt loam to a depth of 16 inches; yellowish red, friable silty clay loam to 46 inches; and yellowish red, firm clay to 65 inches.

This soil is strongly or very strongly acid throughout except for the surface layer in areas that have been limed. Natural fertility is high. Permeability is moderate, and the available water capacity is high.

Included in mapping are a few small areas where the subsoil is clayey and a few small areas of soils that are less than 60 inches thick over bedrock. Also included are moderately well drained soils in a very few depressional areas and areas along small drainageways.

The potential for farming is high. This highly productive Lomond soil is among the most productive soils in Davidson County. It is well suited to all crops commonly grown in the area. Slope is a minor limitation for farming but can be easily overcome by management practices.

This soil also has high potential for urban uses, but its high value for crop production needs to be considered before it is put to other uses.

The capability subclass is IIe. The woodland suitability subclass is 2o.

MaB—Maury silt loam, 2 to 7 percent slopes. This deep, gently sloping to sloping, well drained soil is on the uplands in the outer part of the Nashville Basin. Areas are 20 to 275 acres, but a few are as large as 350 acres.

Typically, the surface layer is dark brown silt loam about 7 inches thick. The subsoil extends to a depth of 65 inches. It is brown and reddish brown, friable silty clay loam in the upper part; reddish brown, firm silty clay in the middle part; and yellowish red, firm silty clay in the lower part.

This soil is medium acid or strongly acid except for the surface layer in limed areas. Natural fertility is medium. The content of phosphorus ranges from medium to high. Permeability is moderate, and available water capacity is high. The soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and is easily penetrated by the roots.

Included in mapping are a few small areas where the subsoil is brown silty clay loam.

The potential is high for farming. This Maury soil is one of the most productive soils on the uplands in Davidson County. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage and cover crops, including grasses and legumes, in the cropping system reduce runoff and erosion.

The potential is high for most urban uses (fig. 5). Slope is a limitation for some urban uses, and low strength is a limitation for local roads and streets, but these limitations can be overcome by good design and careful installation.

The capability subclass is IIe. The woodland suitability subclass is 2o.

MaC—Maury silt loam, 7 to 20 percent slopes. This deep, sloping to moderately steep, well drained soil is on hillsides in the outer part of the Nashville Basin. Most areas are 5 to 65 acres, but a few are as large as 125 acres.

Typically, the surface layer is dark brown silt loam about 7 inches thick. The subsoil extends to a depth of 65 inches. It is brown and reddish brown, friable silty clay loam in the upper part; reddish brown, firm silty clay in the middle part; and yellowish red, firm silty clay in the lower part.

This soil is medium acid or strongly acid except for the surface layer in limed areas. Natural fertility is medium. Permeability is moderate, and the available water

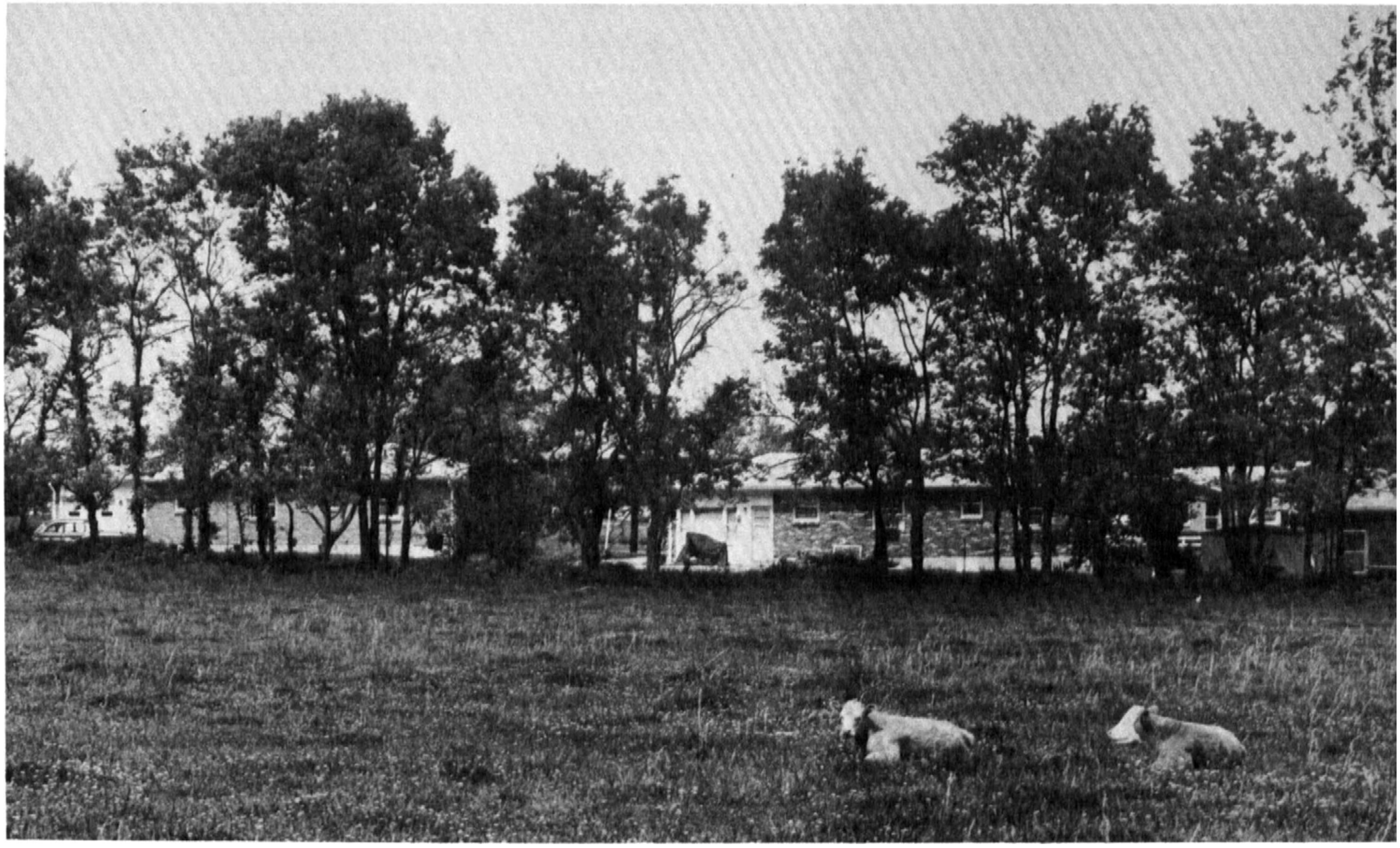

Figure 5.—Farmland is rapidly being converted to residential development and other urban uses. The soil is Maury silt loam, 2 to 7 percent slopes.

capacity is high. The content of phosphorus ranges from medium to high.

Included with this soil in mapping are a few small areas where the subsoil is dark brown silty clay loam. Also included are some small areas where rounded fragments of rock and chert are scattered throughout the soil. Soils in eroded areas have a surface layer that is silty clay loam or finer in texture.

The potential is high for farming. This Maury soil is one of the most productive soils on the uplands in Davidson County. Slope is a limitation, and erosion is a hazard. Contour plowing, stripcropping, and cropping systems that include pasture or hay and a row crop reduce runoff and erosion.

The potential is medium for most urban uses. Slope is a limitation for most urban uses. Low strength is a limitation for local roads and streets. These limitations can be overcome by good design and careful installation.

The capability subclass is IVe. The woodland suitability subclass is 2o.

McB—Maury-Urban land complex, 2 to 7 percent slopes. This unit consists of deep, gently sloping to sloping, well drained Maury soils and urban areas on uplands in the outer part of the Nashville Basin. Much of the unit is in residential developments and shopping centers and recreation facilities. Areas are 5 to 60 acres.

About 45 to 60 percent of each mapped area is Maury soil. This part is mostly yards, gardens, and vacant lots where the soil has not been significantly disturbed. The other 35 to 50 percent of each mapped area consists mostly of house sites, driveways, streets, and industrial buildings. Hills have been cut and low areas have been filled to make road frontages more accessible.

Typically, the surface layer of Maury soil is dark brown silt loam about 7 inches thick. The subsoil extends to a depth of 65 inches. It is brown and reddish brown, friable silty clay loam in the upper part; reddish brown, firm silty clay in the middle part; and yellowish red, firm silty clay in the lower part.

Maury soils are medium acid or strongly acid except for the surface layer in limed areas. Natural fertility is medium. The content of phosphorus ranges from medium to high. Permeability is moderate, and the available water capacity is high. The root zone is deep and is easily penetrated by roots.

Included in mapping are a few small areas of soils that are well drained or moderately well drained and are silt loam throughout. Also included are a few small areas where the subsoil is brown clay. In a few small areas the soils are less than 40 inches thick over rock.

Maury soils have few or no limitations for urban development. The slope is a minor limitation for some uses but can be easily overcome by good design and installation.

This map unit is not assigned to a capability subclass. The Maury soils are in woodland suitability subclass 2o. Urban land is not assigned to a woodland suitability subclass.

MmC—Mimosa silt loam, 2 to 12 percent slopes. This deep, gently sloping to sloping, well drained soil is on uplands in the outer part of the Nashville Basin. Areas are 5 to 50 acres.

Typically, the surface layer is brown silt loam about 7 inches thick. The subsoil is brown, firm silty clay in the upper 7 inches and yellowish brown, firm clay in the lower part. Hard limestone bedrock is at a depth of 55 inches.

This soil is medium acid to very strongly acid except for the surface layer in areas that have been limed and the layer just above bedrock. Natural fertility is medium. The content of phosphorus is medium to high. Permeability is moderately slow, and the available water capacity is moderate. The shrink-swell potential is moderate. Depth to hard limestone bedrock is 40 to 60 inches.

Included with this soil in mapping are a few small areas where the subsoil is friable silty clay loam. Also included are a few areas of soils that are less than 40 inches thick over bedrock and a few of soils that contain many chert fragments.

The potential is medium to low for row crops. Strong slopes are a limitation. The potential is medium for hay crops and pasture and medium to high for small grains. Returning crop residue to the soil and using minimum tillage help to maintain better moisture conditions.

The potential is medium for urban uses. The moderate shrink-swell potential, restricted depth to bedrock, and slope are limitations for uses such as residential building and light industry. Low strength is a limitation for local roads and streets. These limitations can be partly overcome by good design, layout, and installation. Where deep cuts or excavations for basements, foundations, and roads are required, blasting in hard limestone bedrock may be needed.

The capability subclass is IVe. The woodland suitability subclass is 3o.

MmD—Mimosa silt loam, 12 to 25 percent slopes. This deep, moderately steep to steep, well drained soil is on uplands in the outer part of the Nashville Basin. Areas are 10 to 150 acres.

Typically, the surface layer is brown silt loam about 7 inches thick. The subsoil is brown, firm silty clay in the upper 7 inches and yellowish brown, firm clay in the lower part. Hard limestone bedrock is at a depth of 55 inches.

This soil is medium to very strongly acid except for the surface layer in areas that have been limed and the soil layer just above bedrock. It is medium to high in phosphorus. Natural fertility is medium. Permeability is moderately slow, and the available water capacity is moderate. The shrink-swell potential is moderate. Depth to hard limestone bedrock is 40 to 60 inches.

Included in mapping are a few small areas where the subsoil is less than 35 percent clay. Also included are a few small areas of soils that contain more than 15 percent chert fragments throughout and a few small areas of soils that are less than 40 inches thick over bedrock.

The potential is medium for small grains, hay, and pasture. Strong slopes, clayey subsoil, and erosion hazard are limitations.

The potential for urban uses is low. Moderate shrink-swell potential, restricted depth to bedrock, and slopes are limitations for uses such as light industry and residential building. Low strength is a limitation for local roads and streets. These limitations can be partly overcome by good design, layout, and installation. Where deep excavations for basements, foundations, and roads construction are required, blasting in the hard limestone bedrock may be needed.

The capability subclass is VIe. The woodland suitability subclass is 3o.

MoE3—Mimosa silty clay, 12 to 25 percent slopes, severely eroded. This deep, moderately steep to steep, well drained soil is on uplands in the outer part of the Nashville Basin. Areas are 5 to 40 acres.

Typically, the surface layer is brown silty clay about 6 inches thick. The subsoil is brown, firm silty clay in the upper 7 inches and yellowish brown, firm clay in the lower part. Hard limestone bedrock is at a depth of 55 inches.

This soil is medium acid or very strongly acid except for the surface layer in limed areas and the layer just above bedrock. Natural fertility is medium. Permeability is moderately slow, and the available water capacity is moderate. The content of phosphorus is medium to high. Depth to hard limestone bedrock is 40 to 60 inches.

Included in mapping are a few small areas where the subsoil is friable silty clay loam. Also included are a few small areas where numerous fragments of chert are throughout the soil and some small areas of soils that are less than 40 inches thick over bedrock.

The potential is low to medium for small grains, hay, and pasture. The strong slopes, clayey subsoil, and severely eroded condition are limitations.

The potential for urban uses is low. The moderate shrink-swell potential, restricted depth to bedrock, and slope are limitations to uses such as light industry and residential building. Low strength is a limitation for local roads and streets. These limitations can be partly overcome by good design, layout, and installation. Where deep excavations for basements, foundations, and road construction are required, blasting in hard limestone bedrock may be needed.

The capability subclass is VIe. The woodland suitability subclass is 4c.

MrD—Mimosa-Rock outcrop complex, 5 to 20 percent slopes. This map unit consists of deep, sloping to moderately steep, well drained Mimosa soils intermingled with areas of Rock outcrop. This unit is on uplands in the outer part of the Nashville Basin. Areas are 10 to 130 acres.

Mimosa soils make up 50 to 80 percent of each mapped area. Typically, the surface layer is brown silt loam about 7 inches thick. The subsoil is brown, firm silty clay in the upper 7 inches and yellowish brown, firm clay in the lower part. Hard limestone bedrock is at a depth of 55 inches.

Rock outcrop makes up 10 to 40 percent of each mapped area. The rock is massive phosphatic limestone.

Mimosa soils are medium acid to very strongly acid except for the surface layer in limed areas and the layer just above bedrock. Natural fertility is medium. Permeability is moderately slow, and the available water capacity is moderate. The shrink-swell potential is moderate. The content of phosphorus is medium to high. Depth to hard limestone bedrock is 40 to 60 inches.

Included in mapping are a few small areas of soils that are less than 40 inches thick over bedrock. Also included are a few areas of soils that have a silty clay loam subsoil.

The potential is low for small grains and hay and low to medium for pasture.

The potential is low for urban uses. Rock outcrops, moderate shrink-swell potential, depth to rock, and slope are major limitations.

The capability subclass is VIs. Mimosa soils are in woodland suitability subclass 3o. Rock outcrop is not assigned to a woodland suitability subclass.

MrE—Mimosa-Rock outcrop complex, 20 to 35 percent slopes. This map unit consists of deep, steep, well drained Mimosa soils intermingled with areas of Rock outcrop. This unit is on the uplands in the outer part of the Nashville Basin. Areas are 10 to 145 acres.

Mimosa soils make up 50 to 80 percent of each mapped area. Typically, the surface layer is brown silt loam about 7 inches thick. The subsoil is brown, firm, silty clay in the upper 7 inches and yellowish brown, firm clay in the lower part. Hard limestone bedrock is at a depth of 55 inches.

Rock outcrop makes up 10 to 40 percent of each mapped area. The rock is massive phosphatic limestone.

Mimosa soils are medium acid to very strongly acid except for the surface layer in limed areas and the layer just above bedrock. Natural fertility is medium. Permeability is moderately slow, and the available water capacity is moderate. The shrink-swell potential is moderate. Depth to hard limestone bedrock is 40 to 60 inches. The content of phosphorus is medium to high.

Included in mapping are a few small areas where the slope is less than 20 percent. Also included are a few areas of soils that are less than 40 inches thick over bedrock and a few small areas of soils that have a silty clay loam subsoil.

The potential is low for farming and urban uses. Large rock outcrops, steep slopes, moderate shrink-swell potential, and depth to rock are limitations.

The capability subclass is VIIs. Mimosa soils are in woodland suitability subclass 3r. Rock outcrop is not assigned to a woodland suitability subclass.

MsD—Mimosa-Urban land complex, 5 to 25 percent slopes. This unit consists of deep, sloping to steep, well drained Mimosa soils and urban areas in uplands in the outer part of the Nashville Basin. Much of this unit is in residential developments and in industrial sites, shopping centers, and recreation facilities. Areas are 5 to 200 acres.

About 45 to 80 percent of each mapped area is Mimosa soils. This part is mostly yards, gardens, and vacant lots where the soil has not been significantly disturbed. The other 15 to 50 percent of each mapped area consists mostly of house sites, driveways, streets, and industrial buildings.

Typically, the surface layer of Mimosa soils is brown silt loam about 7 inches thick. The subsoil is brown, firm silty clay in the upper 7 inches and yellowish brown, firm clay in the lower part. Hard limestone bedrock is at a depth of 55 inches.

Included in mapping are areas of soils that are similar to Mimosa soils but that are less than 40 inches to bedrock. A few small exposures of bedrock are included in some places.

Mimosa soils are medium acid to very strongly acid except for the surface layer in areas that have been limed and the layer just above bedrock. The content of phosphorous is medium to high. Natural fertility is medium. Permeability is moderately slow, and the available water capacity is moderate. The shrink-swell potential is moderate. Depth to hard limestone bedrock is 40 to 60 inches.

The potential for urban uses is low. The moderate shrink-swell potential, depth to bedrock, and slopes are major limitations to uses such as light industry and residential development. Low strength is a limitation for local roads and streets. All the limitations can be overcome by good design, layout, and installation.

This map unit is not assigned to a capability subclass. Mimosa soils are in woodland suitability subclass 3o. Urban land is not assigned to a woodland suitability subclass.

MvC—Mountview silt loam, 3 to 10 percent slopes. This deep, gently sloping to sloping, well drained soil is on hilltops and ridges on the Highland Rim. Areas are 15 to 70 acres.

Typically, the surface layer is brown silt loam about 7 inches thick. The subsoil is mainly strong brown, friable silt loam and silty clay loam to a depth of 39 inches and is yellowish red, firm cherty silty clay loam to a depth of 73 inches.

This soil is strongly acid or very strongly acid except for the surface layer in areas that have been limed. Natural fertility is low. Permeability is moderate, and the available water capacity is high.

Included in mapping are a few small areas where the subsoil is clay. Also included are a few small areas of soils that have a fragipan. In some of the steeper areas there are a few spots of eroded soils where the strong brown subsoil is exposed.

The potential is medium for row crops and small grains (fig. 6) and high for hay and pasture. The potential for row crops is somewhat limited by slope and by the small size and the location atop hills of many areas. The soil responds well to management. Any of the common row crops can be grown in 2- or 3-year cropping systems or more often if stripcropping or minimum tillage is used.

The potential for urban uses is high. Slope is a minor limitation for uses such as residential building and road construction. Deep cuts in this soil expose the cherty and clayey lower part of the subsoil. Exposing the subsoil may adversely affect the functioning of septic tank disposal fields.

The capability subclass is IIe. The woodland suitability subclass is 3o.

Ne—Newark silt loam. This deep, nearly level, somewhat poorly drained soil is on flood plains of the Cumberland, Harpeth, and Stones Rivers. Areas are 5 to 35 acres. Slopes range from 0 to 2 percent.

Typically, the surface layer is brown silt loam about 6 inches thick. The subsoil is friable silt loam that extends to a depth of 43 inches. It is brown mottled with grayish brown to a depth of 15 inches and light brownish gray mottled in shades of brown below 15 inches. The substratum to a depth of 60 inches is brown, friable silty clay loam mottled in shades of gray and brown.

This soil is medium acid to mildly alkaline. Natural fertility is medium. Permeability is moderate, and the available water capacity is high. The soil is subject to common flooding of brief duration during winter. Depth to the seasonal high water table is 6 to 18 inches.

Included in mapping are a few small areas of moderately well drained soils and a few areas of poorly drained soils. Also included are a few small areas of soils that have a fragipan.

The potential is medium to high for row crops, small grains, hay, and pasture. It is limited by wetness, which causes problems with equipment and planting during periods of heavy rainfall. Tile drainage or drainage ditches increase the potential.

The potential for urban uses is low. Flooding and the high water table are major limitations to urban development.

The capability subclass is IIw. The woodland suitability subclass is 1w.

Oc—Ocana cherty silt loam. This deep, nearly level, well drained soil is on flood plains and along narrow drainageways in the Nashville Basin. Areas are 10 to 175 acres. Slopes range from 0 to 3 percent.

Typically, the surface layer is dark brown cherty silt loam about 8 inches thick. The subsoil is friable cherty silt loam that extends to a depth of 50 inches. It is dark brown in the upper part and dark yellowish brown in the middle and lower parts. The underlying material to a depth of 62 inches is dark brown, friable cherty loam.

This soil is medium acid through neutral. Natural fertility is medium. Permeability is moderately rapid, and the available water capacity is moderate. The soil is subject to rare flooding.

Included in mapping are a few small areas of soil that does not contain chert fragments and small areas of moderately well drained soils that have a brown noncherty surface layer. Also included are small areas of soils that have a reddish brown clay subsoil and a few small areas of soils subject to occasional flooding for brief periods.

The potential for farming is medium. The rare flooding does not seriously interfere with farming, but it is a major limitation to some urban uses such as residential developments.

The capability subclass is IIs. The woodland suitability subclass is 2o.

Pt—Pits. This miscellaneous area is made up of excavations, pits, and quarries. Most areas are in the Nashville Basin. They have been strip mined for gravel, fill material, or phosphate rock (fig. 7). Others have been excavated for clay for making brick or for a landfill site. The overburden from the mines has been dumped in rough, uneven mounds. Areas are 5 to more than 100 acres. Most have been excavated as far as a depth of 6 to more than 50 feet.

Generally, these areas are not vegetated. A few are being reclaimed by leveling.

This unit is not assigned to a capability subclass or a woodland suitability subclass.

RtC—Rock outcrop-Talbott complex, 5 to 15 percent slopes. This map unit consists of limestone rock outcrops intermingled with moderately deep, sloping to moderately steep, well drained Talbott soils. This unit is on uplands in the inner part of the Nashville Basin. Areas are 15 to 150 acres.

Rock outcrop makes up about 50 to 65 percent of each mapped area. The rock is hard, massive limestone.

Talbott soils make up 20 to 50 percent of each mapped area. Typically, the surface layer is brown silt

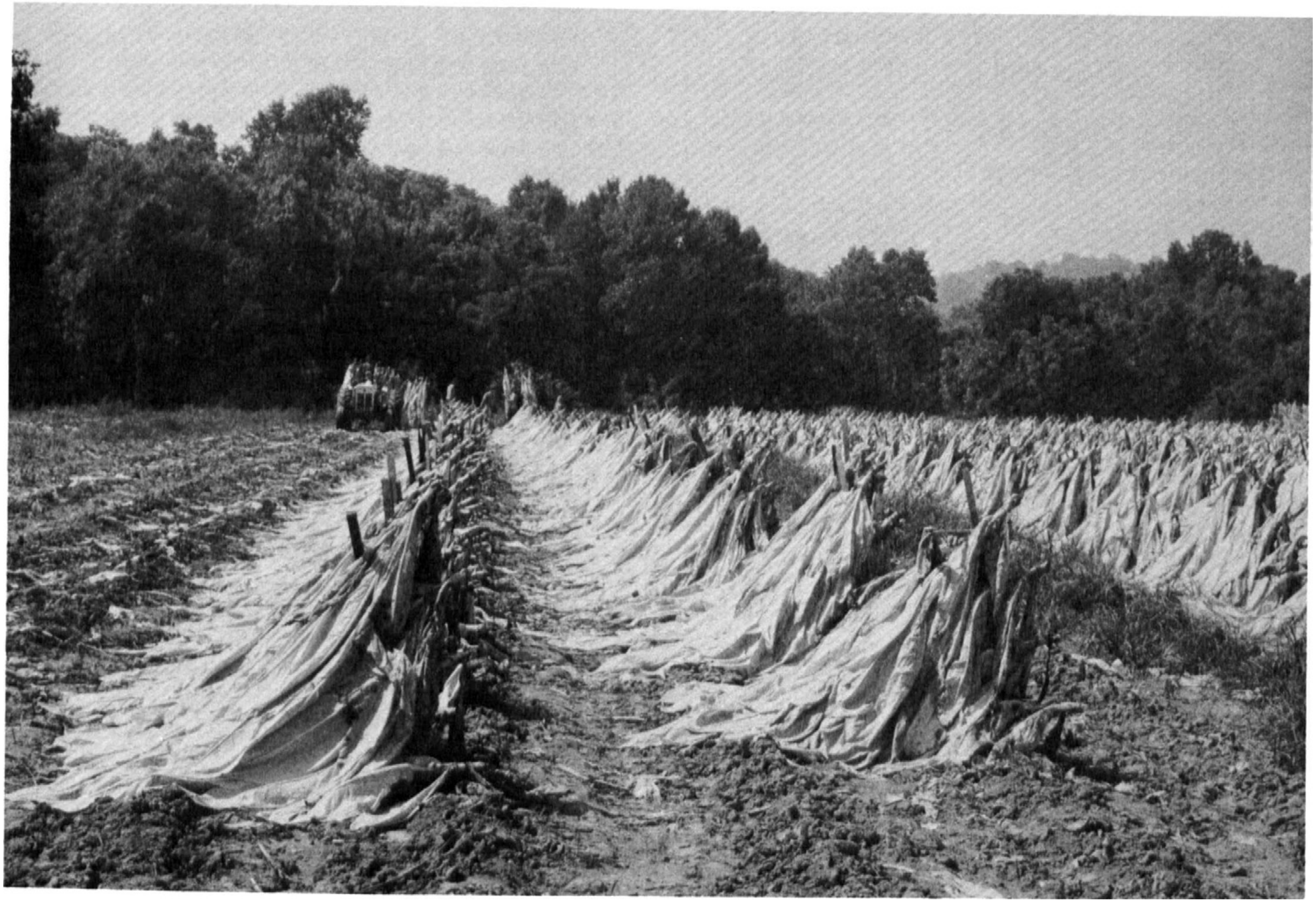

Figure 6.—Burley tobacco on Mountview silt loam, 3 to 10 percent slopes.

loam about 5 inches thick. The subsoil is yellowish red, firm silty clay to a depth of 10 inches, red, very firm clay to 27 inches, and yellowish brown, extremely firm clay to 32 inches. Below this is hard limestone bedrock.

These Talbott soils are medium acid or strongly acid except for the surface layer in limed areas and the layer just above bedrock. Natural fertility is medium. Permeability is moderately slow, and the available water capacity is low. The shrink-swell potential is moderate.

Included in mapping are a few small areas where the subsoil is yellowish brown silty clay loam. Also included are a few areas where Rock outcrop makes up less than 50 percent of the unit. There are a few small areas where the surface layer is silty clay loam or silty clay.

The potential is low for farming and urban uses. Rock outcrop, shallowness over hard rock, moderate shrink-swell potential, and slope are limitations that are very difficult to overcome.

The capability subclass is VIIs. Rock outcrop is not assigned to a woodland suitability subclass. Talbot soils are in woodland suitability subclass 3c.

Se—Sequatchie fine sandy loam. This deep, nearly level to gently sloping, well drained soil is on terraces of the Cumberland River. Areas are 5 to 30 acres. Slopes range from 1 to 4 percent.

Typically, the surface layer is dark brown fine sandy loam about 7 inches thick. The subsoil extends to a

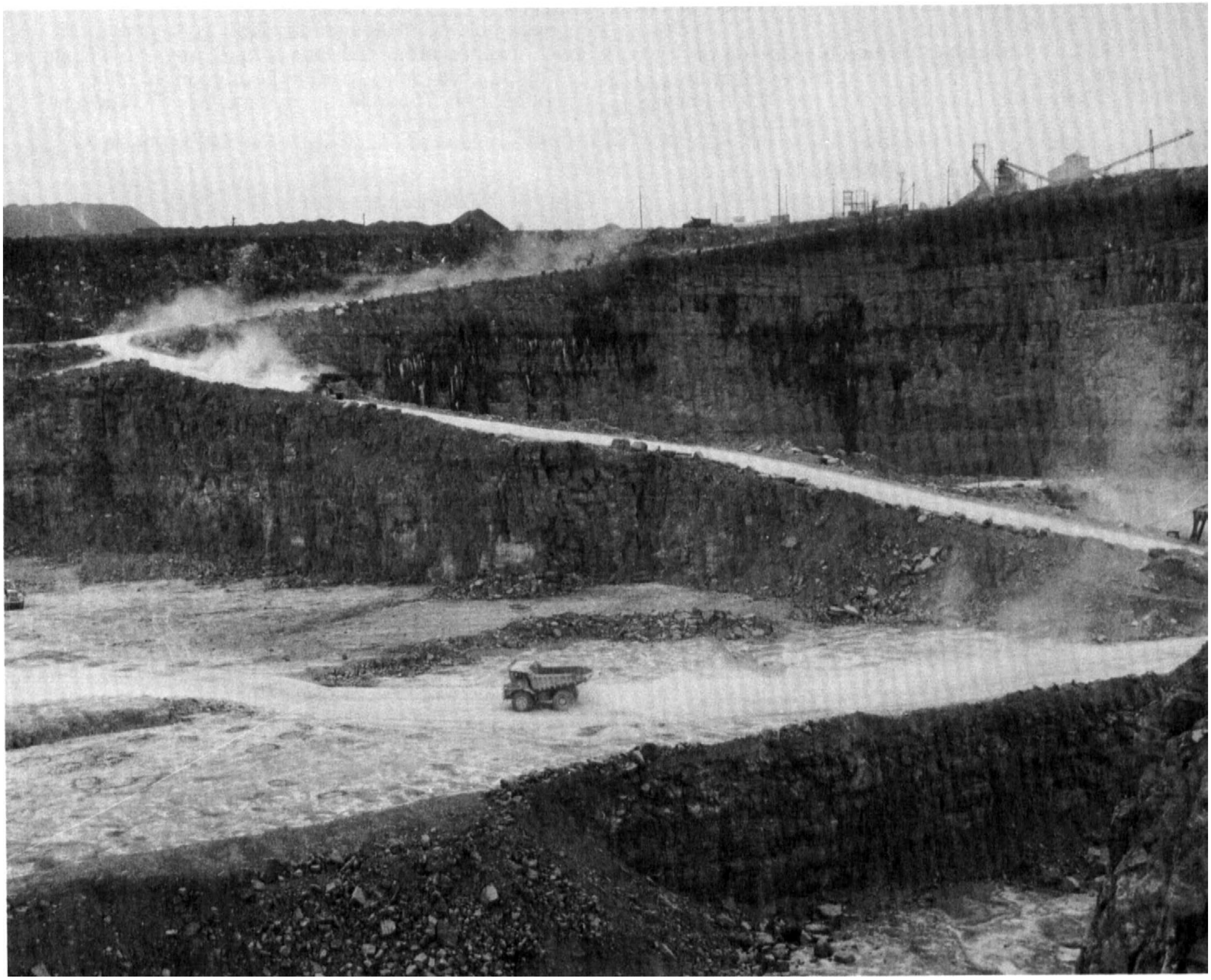

Figure 7.—A limestone quarry.

depth of 47 inches. It is brown, friable loam and clay loam. The substratum to a depth of 65 inches is yellowish brown, loose sandy loam.

This soil is strongly acid to very strongly acid throughout except where the surface layer has been limed. Natural fertility ranges from medium to high. Permeability is moderate, and the available water capacity is moderate to high. The root zone is deep and favorable for root development. The soil responds well to fertilization and management.

Included in mapping are a few small areas of soils that have a brown silt loam surface layer, a yellowish brown subsoil, and a fragipan. Also included are a few areas of moderately well drained soils that have a brown silt loam surface layer and a yellowish brown silt loam subsoil mottled with gray. A very few long narrow areas of a somewhat poorly drained soil are included in a few of the areas. Included are a few small areas of soils subject to occasional flooding for brief periods.

The potential is high for farming. Row crops, such as corn, soybeans, and vegetable crops, can be grown every year. The high value of this soil for food production should be considered before the soil is put to other uses.

The potential is high for most urban uses except in small areas of included soils that are subject to flooding. The possibility of flooding needs to be checked before the soil is put to uses other than crop production.

The capability subclass is IIe. The woodland suitability subclass is 2o.

SmC—Stemley cherty silt loam, 3 to 12 percent slopes. This deep, gently sloping to sloping, moderately well drained soil has a fragipan. It is on foot slopes and terraces in the outer part of the Nashville Basin. Areas are 3 to 50 acres.

Typically, the surface layer is brown, cherty silt loam about 6 inches thick. The subsoil extends to a depth of 65 inches. A firm and brittle fragipan is between depths of 20 and 46 inches. The subsoil is yellowish brown, friable cherty silt loam and cherty silty clay loam above the pan; mottled light yellowish brown and yellowish brown cherty silty clay loam in the pan; and mottled brownish yellow, firm cherty clay loam below the pan.

This soil is strongly acid or very strongly acid throughout except for the surface layer in areas that have been limed. Natural fertility is low. Permeability is moderate above the fragipan and slow in the pan. The available water capacity is low.

Included in mapping are a few small areas of soils that do not contain cherty fragments. Also included are a few small areas of a soil that has a clayey subsoil and is well drained and a few small areas of soils that are subject to flooding.

The potential is low for row crops and medium for small grains, hay, and pasture. The potential for row crops is limited by slope and low available water capacity.

The potential is medium for urban use except in small included areas that are subject to flooding. Wetness is a limitation for residential development. Central sewage lines may be needed because permeability in the fragipan is too slow for proper functioning of septic tank absorption fields. The possibility of flooding needs to be checked before the soil is put to uses other than farming.

The capability subclass is IIe. The woodland suitability subclass is 3o.

StC—Stiversville loam, 3 to 12 percent slopes. This deep, gently sloping to sloping, well drained soil is on ridgetops and side slopes in the outer part of the Nashville Basin. Areas are 3 to 40 acres.

Typically, the surface layer is dark brown loam about 8 inches thick. The subsoil extends to a depth of 53 inches. It is brown, friable loam in the upper 4 inches; brown, friable clay loam in the next 8 inches; and reddish brown, friable clay loam in the lower part. The substratum is weathered, level-bedded phosphatic shale and limestone. Limestone bedrock is at a depth of 60 inches.

This soil is medium acid or strongly acid except for the surface layer in areas that have been limed. It is medium to high in phosphorus. Natural fertility is medium. Permeability is moderately rapid, and the available water capacity is moderate. Tilth is good, and the soil can be worked throughout a wide range of moisture conditions. Depth to hard limestone bedrock is 40 to 60 inches.

Included in mapping are a few small areas of a soil that has a dark brown silt loam surface layer and a yellowish brown clay subsoil. Also included are a few small areas of soils that are less than 40 inches thick over rock.

The potential is medium for row crops and high for small grains, hay, and pasture. The potential for cultivated crops is limited mainly by slope and by the small size and irregular shape of many areas. Row crops can be grown in a 3-year cropping system or perhaps more often if stripcropping and minimum tillage are used.

The potential is high for urban development. For uses such as residential and road construction, the slope and depth to bedrock are limitations. The slope limitation can easily be overcome by good design and installation procedures. Where deep cuts or excavations are needed for basements, foundations, or road construction, blasting in the hard limestone bedrock may be required.

The capability subclass is IIIe. The woodland suitability subclass is 3o.

StD—Stiversville loam, 12 to 25 percent slopes. This deep, moderately steep to steep, well drained soil is on hillsides in the outer part of the Nashville Basin. Areas are 5 to 40 acres.

Typically, the surface layer is dark brown loam about 8 inches thick. The subsoil extends to a depth of 53 inches. It is brown, friable loam in the upper part; brown, friable clay loam in the middle part; and reddish brown, friable clay loam in the lower part. The substratum is weathered level-bedded phosphatic shale and limestone. Bedrock is at a depth of 60 inches.

This soil is medium to high in phosphorus. It is medium acid to strongly acid except for the surface layer in areas that have been limed. Natural fertility is medium. Permeability is moderately rapid, and the available water capacity is moderate. Depth to hard limestone bedrock is 40 to 60 inches.

Included with this soil in mapping are some small areas where the subsoil is yellowish brown or yellowish red, firm clay. Also included are a few small areas of soils that are less than 40 inches thick over rock.

The potential is medium to low for row crops and small grains. Strong slopes are a limitation. However, moderately high yields of all commonly grown row crops can be obtained in a 4- to 6-year cropping system or more often if stripcropping or minimum tillage is used. The potential is high for hay and pasture. The soil can produce high yields of all the grasses and legumes commonly grown.

The potential for urban uses is medium. Slope is a limitation to uses such as residential building and road construction. This limitation can be overcome by good design, layout, and installation procedures. Where deep cuts or excavations for basements, foundations, and road construction are required, blasting in hard limestone bedrock may be needed.

The capability subclass is IVe. The woodland suitability subclass is 3o.

SvD—Stiversville-Urban land complex, 3 to 25 percent slopes. This unit consists of deep, gently sloping to steep, well drained Stiversville soils and urban areas in uplands in the outer part of the Nashville Basin. Much of this unit is in residential developments and industrial sites, shopping centers, and recreation facilities. Areas are 5 to 200 acres.

About 25 to 55 percent of each mapped area is Stiversville soils. This part is mostly yards, gardens, and vacant lots where the soil has not been significantly disturbed. The other 35 to 50 percent of each mapped area is Urban land that consists largely of house sites, driveways, streets, and industrial buildings. Hills have been cut and low areas have been filled to make road frontages more accesssible.

Typically, the surface layer of Stiversville soils is dark brown loam about 8 inches thick. The subsoil extends to a depth of 53 inches. It is brown, friable loam in the upper 4 inches; brown, friable clay loam in the next 8 inches; and reddish brown, friable clay loam in the lower part. The substratum is weathered level-bedded phosphatic shale and limestone. Bedrock is at a depth of 60 inches.

Stiversville soils are medium acid or strongly acid except for the surface layer in limed areas. Natural fertility is medium. The content of phosphorus is medium to high. Permeability is moderate, and the available water capacity is moderate. The root zone is deep and is easily penetrated by roots. Depth to hard limestone bedrock is 40 to 60 inches.

Included in mapping are a few small areas of well drained or moderately well drained soils. These soils are silt loam throughout. Also included are a few small areas where the subsoil is clay. Those areas are generally along the steeper side slopes. A few small areas of soils that are less than 40 inches deep over rock are also included.

The potential is high for urban development. Slope is a limitation for residential building and road construction. This limitation can be overcome by good design and installation procedures. Where cuts or excavations for basements, foundations, or road construction are required, blasting in hard limestone bedrock may be needed.

This map unit is not assigned to a capability subclass. Stiversville soils are in woodland suitability subclass 3o. Urban land is not assigned to a woodland suitability subclass.

Ta—Taft silt loam. This deep, nearly level, somewhat poorly drained soil has a fragipan. It is on upland flats and stream terraces, and in depressions on the Highland Rim. Areas are 5 to 20 acres. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark grayish brown and yellowish brown silt loam about 7 inches thick. The subsoil extends to a depth of 61 inches. A fragipan is between depths of 22 and 43 inches. The subsoil is light olive brown, friable silt loam above the pan; light yellowish brown, friable and slightly brittle silty clay loam in the pan; and yellowish brown, firm silty clay loam mottled in shades of gray below the pan.

This soil is extremly acid to strongly acid. Natural fertility is low. Permeability is slow, and the available water capacity is low.

Included in mapping are a few small areas of moderately well drained soils and a few areas of poorly drained soils.

The potential is low for farming and for urban uses. It is limited mainly by wetness and, in places, by standing water, slow permeability, and a seasonal perched water table above the fragipan. The potential for farming can be improved by drainage. Soybeans are the only row crop grown.

The capability subclass is IIIw. The woodland suitability subclass is 3w.

TbC—Talbott silt loam, 2 to 10 percent slopes. This moderately deep, gently sloping to sloping, well drained soil is on the uplands in the inner part of the Nashville Basin. Areas are 5 to 120 acres.

Typically, the surface layer is brown silt loam about 5 inches thick. The subsoil is yellowish red, firm silty clay to a depth of 10 inches, red, very firm clay to 27 inches, and yellowish brown, extremely firm clay to 32 inches. Hard limestone bedrock is at a depth of 32 inches.

This soil is medium acid or strongly acid except for the surface layer in areas that have been limed and the layer next to bedrock, which ranges to mildly alkaline. Natural fertility is medium to low. Permeability is moderately slow, and available water capacity is low. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas of soils that have a silty clay loam subsoil. Also included are a few small areas of Bradyville and Gladeville soils. In most fields there are a few small eroded spots where the surface layer is reddish silty clay loam or clay. The potential is low for row crops. Slope, rapid runoff, and low available water capacity are limitations. The potential is medium for small grains, hay, and pasture.

The potential for urban uses is medium. The moderately slow permeability of the subsoil, the moderate shrink-swell potential, and the moderate depth to bedrock are major limitations to the use of the soil as a site for buildings, roads, and underground utilities and to other urban uses. Low strength is a limitation for local roads and streets. The limitations can be partly overcome by good design, layout, and installation. Where deep excavations for basements, foundations, and road construction are required, blasting in hard limestone bedrock is needed.

The capability subclass is IVe. The woodland suitability subclass is 3c.

TcC3—Talbott clay, 5 to 15 percent slopes, severely eroded. This moderately deep, sloping to moderately steep, well drained soil is on uplands in the inner part of the Nashville Basin. Areas are 3 to 25 acres.

Typically, the surface layer is yellowish red clay about 6 inches thick. The subsoil is yellowish red, firm clay to a depth of 10 inches, red, very firm clay to 27 inches, and yellowish brown, extremely firm clay to 32 inches. Hard limestone bedrock is at a depth of 32 inches.

This soil is medium acid or strongly acid except for the surface layer in limed areas. The horizon just above bedrock ranges to mildly alkaline. Natural fertility is low. Permeability is moderately slow, and the available water capacity is low. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas of soils that are more than 40 inches thick over bedrock. Also included are a few small areas of Gladeville and Barfield soils and some small areas of Rock outcrop.

This soil has low potential for small grains. Its potential is limited by the strong slope, the clay surface layer, and the low available water capacity. It has medium potential for hay and pasture. Because the surface layer is clay and tilth is poor, germination and seedling survival rates are low. Turning under organic materials helps to improve tilth, germination, and seedling survial.

The potential for urban uses is low to medium. The slope, moderately slow permeability, moderate shrink-swell potential, and moderate depth to bedrock are major limitations to residential building and road construction. Low strength is a limitation for local roads and streets. The limitations can be partly overcome by good design, layout, and installation procedures. Where deep excavations for basements, foundations, and roads are required, blasting in hard limestone bedrock is needed.

The capability subclass is VIe. The woodland suitability subclass is 4c.

TrC—Talbott-Rock outcrop complex, 5 to 15 percent slopes. This map unit consists of moderately deep, sloping to moderately steep, well drained Talbott soils intermingled with areas of Rock outcrop. This unit is on uplands in the inner part of the Nashville Basin. Areas are 20 to 150 acres.

Talbot soils make up 40 to 80 percent of each mapped area. Typically, the surface layer is brown silt loam about 5 inches thick. The subsoil is yellowish red, firm silty clay to a depth of 10 inches, red, very firm clay to 27 inches, and yellowish brown extremely firm clay to 32 inches. Hard limestone bedrock is at a depth of 32 inches.

Rock outcrop makes up 10 to 40 percent of each mapped area. The rock is hard massive limestone.

The Talbott soils are medium acid to strongly acid except for the surface layer in limed areas and the layer just above bedrock, which ranges to mildly alkaline. Natural fertility is medium. Permeability is moderately slow, and the available water capacity is low. The shrink-swell potential is moderate.

Included in mapping are a few small areas of soils that are less than 20 inches thick over bedrock and have a very dark grayish brown silty clay loam surface layer and a dark brown silty clay loam subsoil. Also included are some areas of soils that are more than 40 inches thick over bedrock and some areas that are more than 40 percent Rock outcrop. In a few eroded spots the surface layer is silty clay loam or clay.

The potential is low for farming and urban uses. Limestone outcrops are the main limitation to those uses. The clay content, moderate shrink-swell potential, moderate depth to rock, low available water capacity, and slope are other limitations. Some areas are used for pasture, but the potential for pasture is low because limestone outcrops make establishing and maintaining pasture extremely difficult. For uses such as roadways, cuts must be made in limestone rock and blasting is required.

The capability subclass is VIs. Talbott soils are in woodland suitability subclass 3c. Rock outcrop is not assigned to a woodland suitability subclass.

TuC—Talbott-Urban land complex, 3 to 12 percent slopes. This unit consists of moderately deep, gently sloping to sloping, well drained Talbott soils and urban areas on uplands in the inner part of the Nashville Basin.

Much of this unit is residential developments, shopping centers, recreation facilities, and industrial sites. Areas are 10 to 200 acres.

About 40 to 60 percent of each mapped area is Talbott soils and is mostly yards, gardens, and vacant lots where the soil has not been significantly disturbed. The other 40 to 50 percent is Urban land that consists mostly of house sites, driveways, streets, schools, and industrial buildings. Hills have been cut and low areas filled to make road frontages more accessible.

Typically, the surface layer of Talbott soils is brown silt loam about 5 inches thick. The subsoil is yellowish red, firm silty clay to a depth of 10 inches, red, very firm clay to 27 inches, and yellowish brown, extremely firm clay to 32 inches. Below this is hard limestone bedrock.

Talbott soils are medium acid or very strongly acid except for the surface layer in limed areas, and the layer just above bedrock. Natural fertility is medium. Permeability is moderately slow, and the available water capacity is low. The shrink-swell potential is moderate.

Included in mapping are a few small areas of soils that are less than 20 inches thick over bedrock and have a very dark grayish brown silty clay loam surface layer and a clay subsoil. Also included are a few small areas of soils that are more than than 40 inches thick over bedrock. In some small areas, there are a few outcrops of rock. In a few small eroded areas, the surface layer is silty clay loam or clay.

Practically all of this unit is in residential developments. The potential is low for urban uses. The moderately slow permeability of the subsoil, moderate shrink-swell potential, and moderate depth to bedrock are major limitations to the use of the soils as sites for residential buildings, roads, and underground utilities and to other urban uses. The limitations can be reduced by good design, layout, and installation.

This map unit is not assigned to a capability subclass. The Talbott soils are in woodland suitability subclass 3c. Urban land is not assigned to a woodland suitability subclass.

Wo—Wolftever silt loam. This deep, nearly level to gently sloping, moderately well drained soil is on low terraces, mostly on the flood plains of the Cumberland River. It is on broad, low terraces a few feet higher than the adjacent first bottoms. Areas are 4 to 45 acres. Slopes are mostly 1 to 3 percent but range to 5 percent.

Typically, the surface layer is brown silt loam about 6 inches thick. The subsoil extends to a depth of 55 inches. It is dark yellowish brown and yellowish brown, firm silty clay loam and is mottled in the lower part in shades of brown and gray. The substratum to a depth of 65 inches is dark yellowish brown, firm clay loam mottled in shades of gray.

This soil is strongly acid except for the surface layer in limed areas. Natural fertility is medium. Permeability is moderately slow, and the available water capacity is high. The root zone is deep and can be penetrated by most plant roots. Flooding is common for very brief periods in winter and early spring. The shrink-swell potential is moderate.

Included in mapping are a few small areas of soils that have a dark brown subsoil. A few small areas of soils are not subject to flooding.

The potential is medium to high for row crops, small grains, hay, and pasture. Most of the soil is level enough to grow row crops every year. A few areas have mild slopes where cropping systems and water control practices are needed. Most of the soil is subject to flooding, but flooding generally is not frequent enough or long enough to seriously interfere with farming.

The potential is low for urban uses. Flooding, seasonal wetness, and moderate shrink-swell potential are limitations.

The capability subclass is IIw. The woodland suitability subclass is 3w.

use and management of the soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of roadfill and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

crops and pasture

Clarence H. Jent, agronomist, Soil Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed soil map units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

Only 76,000 acres in the survey area was used for crops and pasture in 1974, according to the Census of Agriculture. Of this total, 28,000 acres was used for permanent pasture; 14,000 acres for row crops, mainly soybeans and corn; 500 acres for close-growing crops, mainly wheat and other small grains; and 9,300 for rotation hay and pasture. The rest was idle cropland.

Acreage in crops and pasture has been decreasing rapidly as more and more land is used for urban development. In 1967 about 118,000 acres of urban and built-up land was in the county. This figure has been growing at the rate of about 6,000 acres annually. The use of this soil survey to help make land use decisions that will influence the future role of farming in the survey area is discussed in the section "General soil map units."

Soil erosion is a major concern on about 80 percent of the cropland and pastureland in Davidson County. If slope is more than 2 percent, erosion is a hazard. Armour, Maury, Mimosa, and Stiversville soils, for example, have slopes of 2 percent or more.

Loss of the surface layer through erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as Maury, Mimosa, Hampshire, and Bradyville soils. It is also damaging on soils that have a layer in or below the subsoil that limits the depth of the root zone. Such layers include a fragipan, as in Dickson, Byler, and Stemley soils, or bedrock, as in Barfield and Talbott soils. Productivity is also reduced on soils that tend to be droughty, such as Bodine cherty silt loam. Second, soil erosion on farmland results in sedimentation of streams. Control of erosion minimizes the pollution of streams by sediment and improves the quality of water for municipal use, for recreation, and for fish and wildlife.

In many sloping fields, the original friable surface soil has been eroded away, leaving clayey spots where tilling or preparing a good seedbed is difficult. Such spots are common in areas of moderately eroded Baxter and Mimosa soils.

Erosion control practices provide protective surface cover, reduce runoff, and increase infiltration. A cropping system that keeps plant cover on the soil for extended periods can hold erosion losses to amounts that will not reduce the productivity of the soils. On livestock farms, which require pasture and hay, the legume and grass forage crops in the cropping system reduce erosion on sloping land, provide nitrogen, and improve tilth.

Minimizing tillage and leaving crop residue on the surface increase infiltration and reduce the hazards of runoff and erosion. These practices can be adapted to most soils in the survey area, but they are difficult to use successfully on eroded soils and on soils that have a clayey surface layer. For corn and soybeans, no-till farming is effective in controlling serious erosion on sloping land and can be adapted to many soils in the survey area. It is difficult to practice successfully, however, on soils that have a clayey surface layer.

Terraces and diversions reduce the length of slope and reduce runoff and erosion. They are practical on deep, well drained soils that have uniform slopes. Sequatchie, Armour, and Dickson soils, and in places, Baxter and Mountview soils are suitable for terraces. The other soils in the county are less suitable for terraces and diversions because they have irregular slopes, a clayey subsoil that would be exposed in terrace channels, or bedrock at a depth of less than 40 inches.

Contouring of crop rows needs to be used more in the survey area. It is best adapted to soils that have smooth, uniform slopes, including most areas of the sloping Baxter, Mountview, Dickson, Armour, and Maury soils.

Information on the design of erosion control practices for each kind of soil is contained in the Technical Guide, available in local offices of the Soil Conservation Service.

Soil drainage is a major management need on about 5 percent of the acreage in crops and pasture in Davidson County. Some soils are so wet that generally it is difficult to grow crops common to the area. Examples are the somewhat poorly drained Beason, Newark, and Taft soils. These soils make up about 4,000 acres of the survey area.

Unless artificially drained, the somewhat poorly drained soils remain wet until late in spring, and crops cannot be planted at the optimum planting dates. In many years yields are reduced because of late planting and wetness in the root zone.

The design of both surface and subsurface drainage systems varies with the kind of soil. A combination of surface drainage and tile drainage is needed in most areas of the somewhat poorly drained soils used for intensive rowcropping. Drains have to be more closely spaced in slowly permeable soils than in more permeable soils.

Soil fertility is naturally low in many soils on uplands. The soils on flood plains, such as Arrington, Lindell, Ocana, Newark, and Beason soils, range from medium acid to mildly alkaline and are naturally higher in plant nutrients than most soils on uplands.

Many soils on uplands are strongly or very strongly acid in their natural state. Applications of ground agricultural limestone are required to raise the pH level sufficiently for good growth of alfalfa and other crops that grow only on nearly neutral soils. Available phosphorus and potash levels are naturally low in many of these soils, but some soils on the uplands are naturally high in phosphorus. On all soils, additions of lime and fertilizer should be based on the results of soil tests, on the need of the crop, and on the expected yields. The Cooperative Extension Service operates a soil testing laboratory and provides test results and recommendations for the kinds and amounts of fertilizer and lime to apply.

Soil tilth is an important factor in the germination of seeds and in the infiltration of water into the soil. Soils with good tilth are granular and porous.

Most of the soils used for crops in the survey area have a surface layer of silt loam that is light in color and low in content of organic matter. Generally the structure of such soils is weak or moderate. Intense rainfall causes the formation of a crust on the surface. The crust, which is hard when dry and somewhat impervious to water, reduces infiltration and increases runoff. Regular additions of crop residue, manure, and other organic material improve soil structure and reduce crusting.

On the clayey Beason, Capshaw, Egam, and Wolftever soils, tilth is a concern because the soils often stay wet until late in spring. If these soils are wet when plowed, they tend to be very cloddy when dry. Preparing good seedbeds is difficult in cloddy soil. Fall plowing on such wet soils generally results in good tilth in the spring.

Field crops suited to the soils and climate of the county include some that are not now commonly grown. Corn, tobacco, vegetables, and soybeans are the main row crops. Grain sorghum, tuft grass sod, additional vegetable crops, Irish potatoes, and similar crops can be grown if economic conditions are favorable.

Wheat and barley are the common close-growing crops. Rye, oats, and buckwheat could be grown, and grass and legume seed could be produced from red clover, annual lespedezas, sericea lespedeza, orchardgrass, crownvetch, fescue, and bluegrass.

Special crops grown commercially in the survey area are vegetables and nursery plants. Radishes, onions, and various kinds of greens are grown in the small areas of bottom land soils. A small acreage throughout the area is used for sweet corn, tomatoes, peppers, squash, and other vegetables. In addition small areas can be adapted to other special crops such as turf grasses, specialized nursery plants such as ground cover plants, flowering shrubs, roses, and other ornamentals.

Deep soils that have good natural drainage and that warm up early in spring are especially well suited to many kinds of vegetable crops. In Davidson county these are the Armour, Maury, and Stiversville soils that have slopes of less than 6 percent.

Latest information and suggestions for growing special crops can be obtained from local offices of the Cooperative Extension Service and the Soil Conservation Service.

Farming and other land uses are competing for large areas of the county. About 170,000 acres, or 52 percent of the survey area, was urban or built-up land in 1974, according to the 1974 Census of Agriculture. Much of this acreage was well suited as cropland. Each year additional land is developed for urban uses in Nashville and its satellite suburban areas.

In general, the soils in the survey area that are well suited to crops are also well suited to urban development. The data about specific soils in this soil survey can be used in planning future land use patterns. Potential productive capacity in farming should be weighed against soil limitations and potential for nonfarm development.

In one area, however, there are soils well suited to farming but poorly suited to nonfarm development. In this area, map unit 5 on the general soil map at the back of this publication, the dominant soils are Arrington, Lindell, and Armour soils. All of these soils are subject to flooding, which is a serious limitation for nonfarm development.

Some soils are only fairly well suited to farming but are generally well suited to nonfarm development. Examples are map units 4 and 8, which are dominantly Mimosa and Talbott soils. These soils are underlain by bedrock at a depth of less than 60 inches, but the rolling landscape, fairly good soil drainage, and other soil qualities are favorable for residential and other urban areas if central sewage disposal is used.

yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green-manure crops; and harvesting that insures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils.

land capability classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor does it consider possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. Soils in classes V and VIII do not occur in Tennessee. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have slight limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations.

woodland management and productivity

Joseph H. Paugh, forester, Soil Conservation Service, helped prepare this section.

Davidson County was originally entirely forested. Now, trees cover 37 percent of the county. Most of the wooded area is mixed hardwoods. Oak-hickory is the dominant forest type; various species of upland oaks make up two-thirds of the volume (*3*).

Eastern redcedar is the dominant conifer found in Davidson County. It makes up 10 percent of the woodland. It is mixed with upland hardwoods and is in pure stands. The pure stands of redcedar are typically on soils that are shallow over limestone or are intermingled with outcrops of limestone.

The value of Davidson County wood products is substantial, but the production per acre is far below its potential. Other benefits derived from forested areas include recreation, wildlife habitat, natural beauty, and soil and water conservation.

Table 6 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination (woodland suitability) symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: x, w, t, d, c, s, f, and r.

In table 6, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings apply to seedlings from good stock that are properly planted during a period of sufficient rainfall. A rating of *slight* indicates that the expected mortality is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suited to the soils and to commercial wood production.

recreation

Joseph H. Paugh, forester, Soil Conservation Service, helped prepare this section.

Davidson County has approximately 200 outdoor recreation facilities. Three-fourths are owned and operated by cities. Only 14 facilities are privately owned. The recreation areas contain nearly 40,000 acres, or about 11 percent of the county. Field sports facilities are the most abundant, and water sports facilities are second (*8*).

Davidson County has high potential in 12 of 19 major recreation categories (*11*). It has medium potential in the other 7 categories. It has the highest potentials for picnic, sport, and scenic areas.

The soils of the survey area are rated in table 7 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 7, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 7 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 10 and interpretations for dwellings without basements and for local roads and streets in table 9.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking, horseback riding, and bicycling should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

wildlife habitat

Willis L. Gainer, biologist, Soil Conservation Service, helped prepare this section.

The major part of Davidson County has been developed or is densely populated, but wildlife are still abundant. Large populations of dove and quail are in the cropland and openland. Squirrels are where mast and den trees, such as oaks and hickories, have been retained. Waterfowl are abundant along streams and lakes. Deer occupy suitable wooded farmland. Many kinds of nongame wildlife, such as songbirds, are found throughout the county.

About 53 percent of Davidson County provides habitat for woodland wildlife, and about 18 percent provides habitat for openland wildlife (*9*).

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 8, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, sorghum, millet, and soybeans.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are orchardgrass, ryegrass, lovegrass, panic grass, annual lespedeza, beggarweed, and clover.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are beggarweed, common lespedeza, wild bean, pokeberry, crotons, and cheatgrass.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oaks, hickory, cherry, and maple.

Coniferous plants furnish browse, seeds, and cones. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pines, cedar, and ornamentals.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, barnyardgrass, spikerush, sedges, burreed, tearthumb, areileima, and pine oak.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Shallow water areas can be designed so that they can be drained, planted, and flooded, or can be used as permanent impoundments to grow submerged aquatics.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite quail, doves, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include woodcock, thrushes, vireos, squirrels, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, rails, herons, common snipe, muskrat, and beaver.

engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

building site development

Table 9 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic supporting capacity.

sanitary facilities

Table 10 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 10 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to effectively filter the effluent. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 10 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 10 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

construction materials

Table 11 gives information about the soils as a source of roadfill and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of

15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

water management

Table 12 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and potential frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

soil properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

engineering index properties

Table 13 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil series and their morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains particles coarser than sand, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as Pt. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent.

Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

physical and chemical properties

Table 14 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.05 to 0.69. The higher the value the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

soil and water features

Table 15 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt and water in swamps and marshes are not considered flooding.

Table 15 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; November-May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 15 are the depth to the seasonal high water table; the kind of water table—that is, perched or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 15.

An apparent water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A perched water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

classification of the soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*12*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. In table 16, the soils of the survey area are classified according to the system. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Haplaquents (*Hapl*, meaning minimal horizonation, plus *aquent*, the suborder of the Entisols that have an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Haplaquents.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, nonacid, mesic Typic Haplaquents.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

soil series and their morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the Soil Survey Manual (*10*). Many of the technical terms used in the descriptions are defined in Soil Taxonomy (*12*). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed soil map units."

Armour series

The Armour series consists of deep, gently sloping to moderately steep, well drained soils. These soils formed in alluvium and the underlying residuum of phosphatic limestone. They are on stream terraces and foot slopes, mostly along the Cumberland and Harpeth Rivers. Slopes range from 2 to 15 percent.

Armour soils are geographically closely associated with Arrington, Hampshire, Lindell, Mimosa, and Maury soils. The well drained Arrington soils and the moderately well drained Lindell soils are on the first bottoms adjacent to the Armour soils. Hampshire, Mimosa, and Maury soils, on higher lying hillsides, have a clayey B horizon.

Typical pedon of Armour silt loam, 2 to 5 percent slopes, in a pasture 200 feet north on Newson Station Road from the junction of Newson Station Road and Merrymont Drive, 50 feet west of Newson Station Road:

Ap—0 to 8 inches; dark brown (10YR 3/3) silt loam; weak medium granular structure; very friable; common fine and medium roots; common fine pores; medium acid; abrupt smooth boundary.

B1—8 to 16 inches; strong brown (7.5YR 5/6) silty clay loam; weak medium subangular blocky structure; friable; common fine roots; few fine pores; few discontinuous clay films; few black and brown concretions; medium acid; clear smooth boundary.

B21t—16 to 25 inches; strong brown (7.5YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; friable; few fine roots; few fine pores; common thin discontinuous clay films; few black and brown concretions; medium acid; clear smooth boundary.

B22t—25 to 41 inches; yellowish red (5YR 4/6) silty clay loam; moderate fine and medium subangular blocky structure; friable; few fine roots; few fine pores; common thin discontinuous clay films; few black and brown concretions; medium acid; gradual smooth boundary.

B23t—41 to 58 inches; strong brown (7.5YR 5/6) silty clay loam; few fine faint strong brown and common medium distinct yellowish red (5YR 4/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; common thin discontinuous clay films; few black and brown concretions; strongly acid; gradual smooth boundary.

B3—58 to 66 inches; strong brown (7.5YR 5/6) silty clay loam, few medium distinct yellowish brown (10YR 5/4), reddish yellow (7.5YR 6/6), and yellowish red (5YR 4/6) mottles; moderate medium subangular blocky structure; friable; few black and brown concretions; strongly acid.

Thickness of the solum ranges from 40 to 70 inches. The soil is medium acid or strongly acid except for the surface layer in areas that have been limed. Phosphorus content ranges from medium to high throughout the profile.

The A horizon is very dark grayish brown (10YR 3/2), dark brown (10YR 3/3, 7.5YR 3/2), or dark yellowish brown (10YR 3/4).

The B horizon is brown (7.5YR 4/4, 5/4), strong brown (7.5YR 5/6, 5/8), reddish brown (5YR 4/4, 5/4), yellowish red (5YR 4/6, 5/6), or yellowish brown (10YR 5/4). In most pedons the lower part of the B horizon has few to common mottles in shades of red, yellow, or brown.

The B horizon is silty clay loam in the upper part and silty clay loam, silty clay, or clay in the lower part.

Arrington series

The Arrington series consists of deep, nearly level, well drained soils that formed in recent alluvium. These soils are on broad flood plains, along narrow drainageways, and in depressions in the Nashville Basin. Slopes range from 0 to 3 percent.

Arrington soils are geographically associated with Armour, Lindell, and Egam soils. Armour soils, on the stream terraces and footslopes adjacent to the Arrington soils, have a reddish argillic horizon. Lindell soils, on the flood plains adjacent to the Arrington soils, are moderately well drained. Egam soils, on flood plains, have a clayey B horizon and are moderately well drained.

Typical pedon of Arrington silt loam in a pasture 200 feet east of Cumberland River, 150 feet south of McGavock Pike, 0.65 mile west of the intersection of Briley Parkway and McGavock Pike:

Ap—0 to 10 inches; dark brown (10YR 3/3) silt loam; weak medium granular structure; very friable; few fine roots; few fine pores; slightly acid; clear smooth boundary.

A12—10 to 35 inches; dark brown (10YR 3/3) silt loam; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; slightly acid; gradual smooth boundary.

B2—35 to 50 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; slightly acid; gradual smooth boundary.

C—50 to 65 inches; brown (10YR 4/3) silt loam; few medium faint yellowish brown (10YR 5/4) and light yellowish brown (10YR 6/4) mottles; weak medium granular structure; friable; slightly acid.

Solum thickness ranges from 40 to 60 inches. The soil is slightly acid or neutral. Phosphorus content ranges from medium to high.

The A horizon ranges from 24 to 40 inches in thickness. It is dark brown (10YR 3/3) or very dark grayish brown (10YR 3/2).

The B horizon is dark brown (10YR 3/3, 4/3) or dark yellowish brown (10YR 4/4, 3/4). In some pedons it is faintly mottled with brown or yellowish brown. It is silt loam or, in a few places, silty clay loam.

The C horizon ranges from dark grayish brown (10YR 4/2) to brown (10YR 4/3) and is mottled in shades of yellow or brown. It is silt loam or silty clay loam.

Barfield series

The Barfield series consists of shallow, gently sloping to steep, well drained soils that are moderately slowly permeable. These soils formed on uplands in clayey residuum weathered from level bedded limestone in the Nashville Basin. Slopes range from 5 to 35 percent.

Barfield soils are geographically associated with the Talbott, Hampshire, and Mimosa soils. All those soils are more than 20 inches thick over limestone bedrock and have an argillic horizon.

Typical pedon of Barfield silty clay loam, 5 to 20 percent slopes, in an old field 1.6 miles west of Eatons Creek Road on Hydes Ferry Pike, 75 feet east from Old Farm Road on the north side of Hydes Ferry Pike:

Ap—0 to 3 inches; very dark grayish brown (10YR 3/2) silty clay loam; strong medium and fine granular structure; friable; few fine roots; few fine pores; neutral; clear smooth boundary.

A12—3 to 8 inches; very dark grayish brown (10YR 3/2) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; neutral; clear smooth boundary.

B21—8 to 11 inches; very dark grayish brown (10YR 3/2) clay, common fine faint brown mottles; moderate medium subangular blocky structure; firm; few fine roots; neutral; clear smooth boundary.

B22—11 to 15 inches; brown (10YR 4/3) clay; few medium distinct very dark grayish brown (10YR 3/2) mottles; moderate medium subangular blocky structure; firm; few fine roots; mildly alkaline.

R—15 inches; limestone rock.

Depth to limestone bedrock ranges from 10 to 20 inches. The soil ranges from slightly acid to mildly alkaline. In some pedons, a few fragments of limestone are throughout the profile.

The A horizon is very dark grayish brown (10YR 3/2) or dark brown (10YR 3/3).

The B horizon is dark brown (10YR 3/3), very dark grayish brown (10YR 3/2), brown (10YR 4/3), or olive brown (2.5Y 4/4). It is silty clay loam to clay that ranges from 35 to 55 percent clay-size grains. In most pedons it is mottled in shades of brown or yellow.

The R layer is level bedded limestone with a few seams and pockets of clay.

Baxter series

The Baxter series consists of deep, gently sloping to moderately steep, well drained soils on uplands. These soils formed in limestone residuum on the Highland Rim. Slopes range from 3 to 20 percent.

Baxter soils are geographically closely associated with Bodine, Dickson, and Mountview soils. Bodine soils, on steep side slopes and ridgetops below Baxter soils, are more cherty and are somewhat excessively drained. Dickson soils, on broad ridges and plateau-like areas above Baxter soils are moderately well drained and have a fragipan. Mountview soils, on broad ridges, formed in about 2 to 3 feet of loess and clay residuum. They do not have as high a chert content as Baxter soils.

Typical pedon of Baxter cherty silt loam, 12 to 20 percent slopes, in a pasture 0.25 mile northwest of the intersection of Clarksville Highway and Old Clarksville Pike:

Ap—0 to 8 inches; brown (10YR 4/3) cherty silt loam; weak fine granular structure; very friable; common fine and medium roots; few fine pores; strongly acid; abrupt smooth boundary.

B21t—8 to 14 inches; yellowish red (5YR 4/6) cherty silty clay loam; moderate fine and medium subangular blocky structure; friable; few fine roots; few fine pores; thin discontinuous clay films on faces of peds; strongly acid; clear wavy boundary.

B22t—14 to 30 inches; red (2.5YR 4/6) cherty clay; few brown streaks along root channels; moderate medium subangular and angular blocky structure; firm; few fine roots; few fine pores; thin continuous clay films on faces of peds; strongly acid; clear wavy boundary.

B23t—30 to 55 inches; yellowish red (5YR 4/6) cherty clay; common fine to coarse distinct mottles of red (2.5YR 4/6), strong brown (7.5YR 5/6), and reddish yellow (5YR 6/8); strong medium angular blocky structure; firm; few fine roots; thin continuous clay films on faces of peds; strongly acid; clear smooth boundary.

B24t—55 to 72 inches; red (2.5YR 4/6) cherty clay; common medium and coarse distinct yellowish red (5YR 4/6) and reddish yellow (5YR 6/8) mottles; weak medium angular blocky structure; firm; few fine roots; thin continuous clay films; strongly acid; strata of weathered chert in lower part.

Thickness of the solum and depth to limestone bedrock are greater than 60 inches. The soil is strongly acid or very strongly acid except for the surface layer in limed areas. Content of chert averages from 15 to 35 percent in the solum.

The A horizon is dark grayish brown (2.5Y 4/2, 10YR 4/2), brown (10YR 4/3, 5/3; 7.5YR 4/2, 4/4), or dark yellowish brown (10YR 3/4, 4/4) and ranges to brown (7.5YR 5/4). It most commonly is silt loam or cherty silt loam or, where severely eroded, silty clay loam.

The B horizon is yellowish red (5YR 4/6, 4/8, 5/6, 5/8) or red (2.5YR 4/6, 4/8). It is cherty silty clay loam grading to cherty clay with increasing depth.

Beason series

The Beason series consists of deep, nearly level, somewhat poorly drained soils that formed in fine textured or moderately fine textured alluvium. These soils are on terraces mainly along the Cumberland River and upland drainageways. Slopes range from 0 to about 3 percent.

Beason soils are geographically associated with Byler, Egam, Lindell, and Newark soils. The moderately well drained Byler soils, which are slightly higher on the stream terraces, have a fragipan. The moderately well drained Egam soils, on flood plains and in depressions slightly below Beason soils, have a mollic epipedon. The well drained Lindell and somewhat poorly drained Newark soils are on adjacent and slightly lower first bottoms.

Typical pedon of Beason silt loam in a pasture 165 feet west of the junction of Old Harding Pike and the L. and N. Railroad tracks, 100 feet north of Old Harding Pike:

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam; moderate medium granular structure; friable; common fine and medium roots; common fine pores; medium acid; clear smooth boundary.

B1—8 to 18 inches; yellowish brown (10YR 5/4) silt loam; moderate fine and medium subangular blocky structure; friable; few fine roots; few fine pores; few fine black and brown concretions; strongly acid; clear wavy boundary.

B21t—18 to 26 inches; yellowish brown (10YR 5/4) silty clay loam; common fine distinct strong brown (7.5YR 5/6) and light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; common fine and medium black and brown concretions; thin patchy clay films; strongly acid; clear wavy boundary.

B22t—26 to 41 inches; yellowish brown (10YR 5/4) silty clay loam; common fine and medium distinct light brownish gray (10YR 6/2) and grayish brown (10YR 5/2) mottles and common medium distinct yellowish brown (10YR 5/6) mottles; mottles increase with increasing depth; moderate medium and fine angular and subangular blocky structure; firm; few fine roots; many fine and medium black and brown concretions as much as one-half inch in size; few rock fragments up to 1 1/2 inches in size; few thin patchy clay films; strongly acid; gradual wavy boundary.

B3g—41 to 51 inches; grayish brown (10YR 5/2) clay; common fine distinct yellowish brown (10YR 5/4) and gray (10YR 6/1) mottles and common medium distinct yellowish brown (10YR 5/6) mottles around concretions; weak medium subangular blocky structure; firm; common fine and medium black and brown concretions; very strongly acid; gradual wavy boundary.

C—51 to 65 inches; grayish brown (10YR 5/2), strong brown (7.5YR 5/6), dark yellowish brown (10YR 4/4), yellowish brown (10YR 5/4), and gray (10YR 6/1) silty clay loam; massive; friable; common fine black and brown concretions; very strongly acid.

Solum thickness ranges from 40 to 70 inches. The soil is strongly acid or very strongly acid throughout except for the surface layer in areas that have been limed.

The A horizon is dark grayish brown, very dark gray, or brown in hue of 10YR.

The upper part of the Bt horizon is dominantly brown (10YR 5/3), light yellowish brown (10YR 6/4), or yellowish brown (10YR 5/4, 5/6) and has common fine and medium mottles in shades of gray, brown, and yellow. The lower part is dominantly grayish brown (10YR 5/2), light brownish gray (10YR 6/2), or gray (10YR 6/1) in addition to the colors given for the upper part. The Bt horizon is silty clay loam, silty clay, or clay.

Color and texture of the C horizon are quite variable. Color ranges from dominantly grayish brown (10YR 5/2) mottled in shades of gray, brown, and yellow to brown (10YR 5/3), dark yellowish brown (10YR 4/4), or yellowish brown (10YR 5/6) mottled in shades of gray and yellow. Texture ranges from silt loam to clay.

Bodine series

The Bodine series consists of deep, sloping to very steep, somewhat excessively drained soils. These soils formed in residuum of cherty limestone. They are mainly on sharply dissected uplands of the Highland Rim. Slopes range from 5 to 50 percent.

Bodine soils are geographically associated with Baxter, Dellrose, Mimosa, and Sulphura soils. Baxter soils are redder then Bodine soils and contain less chert. Dellrose soils have a dark surface layer and are less than 35 percent chert by volume. Mimosa soils have a clayey Bt horizon. Sulphura soils are less than 40 inches thick over bedrock.

Typical pedon of Bodine cherty silt loam, 5 to 20 percent slopes, in a forest 0.75 mile west of the intersection of McCrory Lane and Poplar Creek Road, 0.35 mile north of Poplar Creek Road:

A1—0 to 1 inch; dark grayish brown (10YR 4/2) cherty silt loam; weak fine granular structure; very friable; many fine and medium roots; common fine and medium pores; 20 percent angular chert fragment by volume; strongly acid; abrupt smooth boundary.

A2—1 inch to 5 inches; pale brown (10YR 6/3) cherty silt loam; weak fine granular structure; very friable; many fine and medium roots; common fine pores; 20 percent chert fragments by volume; very strongly acid; abrupt smooth boundary.

B1—5 to 12 inches; yellowish brown (10YR 5/4) cherty silt loam; common fine and medium distinct light yellowish brown (10YR 6/4) mottles; weak medium granular structure; friable; common fine and medium roots; common fine pores; 35 percent chert fragments by volume; very strongly acid; clear smooth boundary.

B21t—12 to 20 inches; strong brown (7.5YR 5/6) cherty silt loam; common fine to distinct pale brown (10YR 6/3) and dark brown (10YR 4/3) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; discontinuous clay films; 35 percent chert fragments by volume; very strongly acid; clear smooth boundary.

B22t—20 to 36 inches; strong brown (7.5YR 5/6) very cherty silty clay loam; common medium distinct very pale brown (10YR 7/4) and yellowish red (5YR 4/8) mottles; moderate medium angular blocky structure; friable; few fine roots; few fine pores; discontinuous clay films; 60 percent chert fragments; very strongly acid; clear smooth boundary.

B23t—36 to 65 inches; strong brown (7.5YR 5/6) very cherty silty clay loam; many fine to coarse distinct yellowish red (5YR 4/8), very pale brown (10YR 7/4), and brownish yellow (10YR 6/8) mottles; moderate medium angular blocky structure; friable; few fine roots; few fine pores; discontinuous clay films; 65 percent chert fragments; very strongly acid.

Thickness of the solum and depth to cherty limestone bedrock are greater than 60 inches. The soil is strongly acid to extremely acid except for the surface layer in limed areas. Chert content ranges from 20 to 45 percent by volume in the A horizon and from 35 to 80 percent in the Bt horizon.

The A1 horizon is dark grayish brown (10YR 4/2; 2.5Y 4/2), very dark grayish brown (10YR 3/2; 2.5Y 3/2), or dark brown (10YR 3/3). The fine earth fraction is silt loam or loam. The A2 or Ap horizon is brown (10YR 4/3, 5/3) pale brown (10YR 6/3), light yellowish brown (10YR 6/4), or yellowish brown (10YR 5/4).

The Bt horizon is yellowish brown (10YR 5/4, 5/6, 5/8), light yellowish brown (10YR 6/4), brownish yellow (10YR 6/6, 6/8), strong brown (7.5YR 5/6, 5/8), or reddish yellow (7.5YR 6/6, 6/8). The range includes subhorizons of yellowish red (5YR 5/6, 5/8, 4/6, 4/8). The number of mottles in shades of brown, yellow, and red ranges from none or few to many throughout the Bt horizon. In some pedons the lower part of the horizon is profusely mottled in shades of brown, yellow, and red and has no dominant color. The fine earth fraction of the Bt horizon is silt loam, loam, silty clay loam, or clay loam and includes subhorizons of clay in the lower part.

Bradyville series

The Bradyville series consists of deep, gently sloping, well drained soils that formed in limestone residuum on uplands in the inner part of the Nashville Basin. In places these soils are capped with a thin layer of alluvium or valley fill. Slopes range from 2 to 5 percent.

Bradyville soils are geographically associated with Talbott and Lomond soils. Talbott soils are 20 to 40 inches thick over limestone rock. Lomond soils are more than 60 inches thick over limestone rock and have a friable silty clay loam B horizon.

Typical pedon of Bradyville silt loam, 2 to 5 percent slopes, in a pasture 300 feet west of the Wilson-Davidson County line, 75 feet north of Stewarts Ferry Pike, on a ridgetop:

Ap—0 to 7 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine granular structure; friable; common fine roots; common fine pores; medium acid; abrupt smooth boundary.

B1—7 to 11 inches; yellowish red (5YR 4/6) silty clay loam; weak medium subangular blocky structure; friable; common fine roots; common fine pores; strongly acid; clear smooth boundary.

B21t—11 to 18 inches; yellowish red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; common fine pores; few black and brown concretions; discontinuous clay films on faces of peds; strongly acid; clear smooth boundary.

B22t—18 to 30 inches; yellowish red (5YR 4/6) clay; moderate medium subangular blocky structure; firm; few fine roots; few fine pores; few black and brown concretions; discontinuous clay films on faces of peds; strongly acid; clear smooth boundary.

B3—30 to 55 inches; yellowish red (5YR 4/6) clay; common fine and medium strong brown (7.5YR 5/8) and light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; firm; few fine roots; few black and brown concretions; strongly acid.

R—55 inches; limestone bedrock.

Thickness of the solum and depth to limestone bedrock range from 40 to 60 inches. The soil is medium acid or strongly acid except for the surface layer in areas that have been limed. The layer just above bedrock ranges to mildly alkaline.

The A horizon is dark yellowish brown (10YR 4/4), dark brown (10YR 3/3; 7.5YR 4/4), dark reddish brown (5YR 3/4), or reddish brown (5YR 4/3, 4/4). It is silt loam or, in eroded areas, silty clay loam and finer material.

The B2t horizon is yellowish red (5YR 4/6) or red (2.5YR 4/6). In most pedons the B1 horizon is strong brown (7.5YR 5/6) or yellowish red (5YR 4/6) silty clay loam or silt loam 3 to 7 inches thick. The B2t horizon is silty clay loam, silty clay, or clay. In some pedons the lower part of the Bt horizon is mottled in shades of brown, yellow, and gray. The B3 horizon is yellowish red (5YR 4/6, 5/6) or strong brown (7.5YR 5/6). It is silty clay or clay mottled in shades of brown or yellow.

Byler series

The Byler series consists of deep, gently sloping, moderately well drained soils that have a fragipan. These soils formed in alluvial deposits underlain by clayey residuum of limestone on uplands and stream terraces. Slopes range from 1 to 5 percent.

Byler soils are geographically closely associated with Armour Mimosa, and Stemley soils. The well drained Armour soils, which are higher on the landscape, have a redder B horizon than Byler soils, and do not have a fragipan. Mimosa soils, on higher lying convex ridges, have a clayey B horizon. Stemley soils, on higher lying footslopes above Byler soils, have a high content of chert fragments.

Typical pedon of Byler silt loam, 2 to 5 percent slopes, in a pasture, 300 feet north on McCrory Lane from the intersection of Highway 100 and McCrory Lane, 25 feet west of McCrory Lane:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; common fine roots; few fine pores; neutral; clear smooth boundary.

B1—9 to 13 inches; yellowish brown (10YR 5/4) silty clay; weak medium subangular blocky structure; friable; few fine roots; few fine pores; medium acid; abrupt smooth boundary.

B2t—13 to 24 inches; yellowish brown (10YR 5/4) silty clay loam; few fine faint brown mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; discontinuous clay films; few fine black and brown concretions; medium acid; abrupt smooth boundary.

Bx1—24 to 30 inches; pale brown (10YR 6/3) silty clay loam; common fine and medium distinct light brownish gray (10YR 6/2), strong brown (7.5YR 5/6), and yellowish brown (5YR 5/4) mottles; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; slightly brittle; few fine and medium black and brown concretions; medium acid; clear smooth boundary.

Bx2—30 to 44 inches; pale brown (10YR 6/3) silty clay loam; common distinct strong brown (7.5YR 5/6) and yellowish brown (10YR 5/4) mottles; moderate coarse prismatic structrue parting to moderate medium subangular blocky; firm and brittle; common fine and medium reddish brown and black concretions; few fragments of chert; medium acid; clear smooth boundary.

IIB2t—44 to 65 inches; mottled light brownish gray (10YR 6/2), light gray (10YR 7/1), strong brown (7.5YR 5/6), pale brown (10YR 6/3), yellowish brown (10YR 5/6), and brownish yellow (10YR 6/6) clay; moderate medium subangular blocky structure; firm; discontinuous clay films; few reddish brown and black concretions and common concretionary stains throughout; strongly acid.

Solum thickness is greater than 60 inches. The soil is medium acid or strongly acid except for the surface layer in limed areas.

The A horizon is brown (10YR 4/3), dark grayish brown (10YR 4/2), or dark yellowish brown (10YR 4/4).

The B1 and B2t horizons are brown (7.5YR 4/4, 5/4), dark yellowish brown (10YR 4/4), strong brown (7.5YR 5/6), or yellowish brown (10YR 5/4, 5/6). They range from silt loam to silty clay loam. A few brown or yellow mottles, small and medium black and brown concretions, and a few small chert fragments generally occur.

The Bx horizon is pale brown (10YR 6/3), light yellowish brown (10YR 6/4), gray (10YR 6/1), or light brownish gray (10YR 6/2; 2.5Y 6/2). It ranges from silt loam to silty clay loam. Yellow, brown, and gray mottles, small black and brown concretions, and chert fragments are common. A concentration of chert fragments is common at or just above the contact of the alluvial material with the underlying residuum.

The IIB2t horizon is mottled in various shades of gray, yellow, and brown. It is silty clay or clay.

Capshaw series

The Capshaw series consists of deep, gently sloping, moderately well drained soils on stream terraces and footslopes. These soils formed in a thin mantle of alluvium and the underlying limestone residuum. Slopes range from 1 to 5 percent.

Capshaw soils are geographically associated with Arrington, Lindell, and Mimosa soils. Arrington soils, on flood plains, are well drained and have a silt loam B horizon. Lindell soils also on flood plains, are moderately well drained and have a silt loam B horizon. Mimosa soils, on adjacent slopes, are well drained.

Typical pedon of Capshaw silt loam, 1 to 5 percent slopes, in a pasture 125 feet north of Holt Road, 1.45 miles west of Nolensville Road:

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; moderate medium granular structure; friable; common fine roots; few fine pores; medium acid; abrupt smooth boundary.

B21t—5 to 10 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; few thin patchy clay films; few fine roots; few fine pores; medium acid; clear smooth boundary.

B22t—10 to 18 inches; yellowish brown (10YR 5/6) clay; moderate medium subangular blocky structure; firm; few thin patchy clay films; few fine roots; few fine pores; medium acid; clear smooth boundary.

B23t—18 to 24 inches; yellowish brown (10YR 5/8) clay; common medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; firm; thin continuous clay films; few fine roots; few fine pores; strongly acid; clear smooth boundary.

B24t—24 to 30 inches; yellowish brown (10YR 5/6) clay; many medium and coarse prominent light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky and angular blocky structure; firm; thin continous clay films; few fine roots; common fine black concretions; strongly acid; clear smooth boundary.

B25t—30 to 45 inches; yellowish brown (10YR 5/8) clay; many coarse distinct light brownish gray (10YR 6/2) mottles; weak medium angular blocky structure; firm; thin patchy clay films; many fine black and dark brown concretions; few fragments of chert up to one-half inch in size; medium acid; clear smooth boundary.

C—45 to 49 inches; light yellowish brown (2.5Y 6/4) clay; many medium faint yellowish brown (10YR 5/4, 5/6) mottles; massive; firm; few fine black and dark brown concretions; mildly alkaline.

R—49 inches; limestone rock.

Thickness of the solum ranges from 40 to 60 inches. Depth to rock ranges from 4 to 7 feet but most commonly is 4 to 5 feet. The soil is strongly acid or medium acid in the upper part and medium acid or mildly alkaline in the lower part.

The A horizon is brown (10YR 4/3, 5/3), dark yellowish brown (10YR 4/4), or yellowish brown (10YR 5/4).

The B horizon is strong brown (7.5YR 5/6, 5/8), brown (7.5YR 5/4), olive brown (2.5Y 4/4), light olive brown (2.5Y 5/4, 5/6) or yellowish brown (10YR 5/4, 5/6, 5/8). In some pedons the lower part of the Bt horizon is mottled gray, yellow, and brown and has no dominant color. The Bt horizon is silty clay loam and clay. Generally the clay content of the B horizon increases gradually from about 27 percent in the upper part to about 45 or 50 percent in the lower part.

The C horizon is light yellowish brown (2.5Y 6/4), grayish brown (2.5Y 5/2; 10YR 5/2), and gray (2.5Y 6/1, 5/1) mottled with yellow, brown, and gray. It is most commonly clay, but the range includes silty clay loam.

Dellrose series

The Dellrose series consists of deep, moderately steep to very steep, well drained soils. These soils are on long steep hillsides leading from the Highland Rim down to the Nashville Basin. They formed in cherty materials that have moved downslope and settled on clay weathered from phosphatic limestone. Slopes range from 12 to 40 percent.

Dellrose soils are geographically associated with Bodine, Mimosa, and Sulphura soils. Bodine soils, which are higher on the slopes, contain more chert than Dellrose soils. Mimosa soils, on adjacent hillsides, have a yellow clay Bt horizon. Sulphura soils, which are higher on the hillsides, are less than 40 inches thick over rock.

Typical pedon of Dellrose cherty silt loam, 12 to 20 percent slopes, in a pasture 300 feet west of Newson Station Road, 1.2 miles north of the intersection of State Highway 70 North and Newson Station Road:

Ap—0 to 6 inches; dark brown (10YR 3/3) cherty silt loam; weak medium granular structure; friable; common fine and medium roots; common fine pores; 20 percent by volume chert fragments; medium acid; clear smooth boundary.

B1—6 to 12 inches; yellowish brown (10YR 5/4) cherty silt loam; weak medium subangular blocky structure and weak fine granular; few fine roots; common fine pores; 20 percent by volume chert fragments; medium acid; clear smooth boundary.

B21t—12 to 20 inches; yellowish brown (10YR 5/4) cherty silt loam; moderate medium subangular blocky structure; friable; few fine roots; common fine pores; discontinuous clay films; 25 percent by volume chert fragments; strongly acid; gradual smooth boundary.

B22t—20 to 42 inches; brown (7.5YR 4/4) cherty silt loam; few to common medium distinct yellowish brown (10YR 5/6) mottles; moderate medium and fine subangular blocky and angular blocky structure; friable; few fine roots; few fine pores; discontinuous clay films; 20 percent by volume chert fragments; medium acid; clear smooth boundary.

B23t—42 to 55 inches; brown (7.5YR 4/4) cherty silt loam; common medium distinct yellowish brown (10YR 5/4) and strong brown (7.5YR 5/6) mottles; few black and brown stains along ped and rock faces; weak medium angular blocky structure; few fine roots; few fine pores; discontinuous clay films; friable; few concretions; 25 percent by volume chert fragments; medium acid; gradual smooth boundary.

B24t—55 to 61 inches; yellowish brown (10YR 5/6) cherty silt loam; many coarse distinct brown (7.5YR 4/4), strong brown (7.5YR 5/6), and brown (10YR 4/3) mottles; few black and brown stains along faces of peds and chert fragments; weak medium angular blocky structure; few fine pores; discontinuous clay films; friable; few concretions; 25 percent by volume chert fragments; medium acid; clear smooth boundary.

IIB2t—61 to 74 inches; yellowish brown (10YR 5/6) clay; common medium distinct yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; continuous clay films; firm; common concretions 10 percent by volume chert fragments; strongly acid.

Thickness of the solum is more than 60 inches. Depth to clayey horizons (IIBt) ranges from 40 inches to more than 75 inches. Coarse fragments include angular chert and shale fragments 1/2 inch to 3 inches across. The content of coarse fragments in each horizon ranges from about 10 percent to about 35 percent, by volume. The soil is strongly acid or medium acid except for the surface layer in limed areas.

The A horizon is dark brown (10YR 3/3) or very dark grayish brown (10YR 3/2).

The Bt horizon is brown (7.5YR 4/4, 5/4), strong brown (7.5YR 5/6), yellowish brown (10YR 5/4, 5/6), or rarely, yellowish red (5YR 4/6). The fine earth part is silty clay loam or silt loam.

In many pedons a IIBt horizon is present. It is brown (7.5YR 4/4), strong brown (7.5YR 5/6), or yellowish brown (10YR 5/6, 5/8) firm clay. In most places the Bt and IIBt horizons are mottled in shades of brown or red.

Dickson series

The Dickson series consists of deep, nearly level to gently sloping, moderately well drained soils that have a fragipan. These soils formed in a layer of loess about 2 feet thick and in underlying residuum, which weathered dominantly from cherty limestone. They are on gently sloping, moderately broad ridges on the Highland Rim. Slopes range from 1 to 4 percent.

Dickson soils are geographically associated with Baxter, Mountview, and Taft soils. Baxter soils, on steeper side slopes below the Dickson soils, are well drained and have a Bt horizon. Mountview soils, on adjacent slopes, do not have a fragipan and are well drained. Taft soils, below Dickson soils on stream terraces and in depressions, are somewhat poorly drained.

Typical pedon of Dickson silt loam, 1 to 4 percent slopes, in a pasture 0.2 mile south of junction of Eatons Creek Road and U.S. Highway 41A, 200 feet east of U.S. Highway 41A.

Ap—0 to 8 inches; brown (10YR 5/3) silt loam; weak fine granular structure; very friable; common fine roots; medium acid; abrupt smooth boundary.

B1—8 to 16 inches; yellowish brown (10YR 5/6) silt loam; weak fine subangular blocky structure; friable; common fine roots; common fine pores; strongly acid; clear smooth boundary.

B2—16 to 25 inches; yellowish brown (10YR 5/4) light silty clay loam; common medium and fine faint pale brown (10YR 6/3) mottles; weak fine and medium subangular blocky structure; friable; few fine roots; few reddish brown concretionary stains; strongly acid; clear smooth boundary.

A'2x—25 to 30 inches; yellowish brown (10YR 5/4) silt loam; common fine and medium distinct light brownish gray (10YR 6/2) mottles; weak thick platy structure parting to weak fine and medium subangular blocky; firm and slightly brittle; few reddish brown concretionary stains; strongly acid; clear smooth boundary.

B'x—30 to 44 inches; yellowish brown (10YR 5/4) silt loam; common medium distinct brownish yellow (10YR 6/6), yellow (10YR 7/8), gray (10YR 6/1), olive yellow (2.5Y 6/6), light yellowish brown (2.5Y 6/4), and white (10YR 8/2) mottles; weak thick platy structure parting to weak fine and medium angular blocky; firm and brittle; few brown concretionary stains; few veins and coatings of grayish clay; few chert fragments; very strongly acid; clear smooth boundary.

IIB'2t—44 to 65 inches; yellowish red (5YR 4/6) cherty clay; common medium and coarse prominent grayish brown (2.5YR 5/2), light brownish gray (10YR 6/2), and very pale brown (10YR 7/3) mottles; moderate medium angular blocky structure; firm; discontinuous clay films; common black concretions; very strongly acid.

Thickness of the solum is more than 60 inches. The loess mantle ranges from 25 to 40 inches in thickness. Depth to the fragipan ranges from about 24 to 36 inches. Thickness of the pan ranges from 6 to 20 inches. Depth to unconsolidated bedrock ranges from 60 inches on narrow ridgetops to more than 10 feet on broad ridges. Reaction in each horizon is strongly or very strongly acid except in surface layers in limed areas.

The A horizon is dark grayish brown (10YR 4/2), brown (10YR 5/3), and yellowish brown (10YR 5/4).

The B horizon is yellowish brown (10YR 5/4, 5/6). It is silt loam or silty clay loam.

The Bx horizon is yellowish brown (10YR 5/4) or light yellowish brown (10YR 6/4) mottled in shades of gray, white, brown, and yellow. It is silt loam or silty clay loam and contains a few chert fragments.

The IIB horizon is yellowish red (5YR 4/6) mottled with gray, yellow, and brown. The fine earth fraction ranges from silty clay loam to clay. The content of chert fragments ranges from a few percent to 35 percent by volume.

Egam series

The Egam series consists of deep, moderately well drained, nearly level soils on flood plains and in depressions. These soils formed in alluvium. Slopes range from 0 to 3 percent.

Egam soils are geographically associated with Arrington, Lindell, and Newark soils. Arrington and Lindell soils have a loamy B horizon. Arrington soils are well drained. Newark soils are somewhat poorly drained and do not have a mollic epipedon.

Typical pedon of Egam silty clay loam in a pasture on the Tennessee State University farm, in the northwest corner of the farm, 200 feet south of the Cumberland River and 150 feet west of a rock fence:

Ap—0 to 7 inches; dark brown (10YR 3/3) silty clay loam; moderate medium granular structure; friable; many fine roots; medium acid; clear smooth boundary.

A12—7 to 22 inches; very dark grayish brown (10YR 3/2) silty clay loam; strong medium angular blocky structure and some weak medium prismatic breaking to angular blocky; firm; many fine roots; medium acid; gradual smooth boundary.

B21—22 to 39 inches; very dark grayish brown (10YR 3/2) silty clay; few fine faint grayish brown mottles; strong medium angular blocky structure and some weak medium prismatic breaking to angular blocky; very firm; common fine roots; mostly between peds, few fine roots in interiors of peds; slightly acid; gradual smooth boundary.

B22—39 to 56 inches; dark brown (10YR 4/3) silty clay; common fine and medium faint dark grayish brown (10YR 4/2) mottles; strong medium angular blocky structure; firm; common fine roots; slightly acid; gradual smooth boundary.

B23—56 to 75 inches; brown (10YR 4/3) silty clay loam; common medium and fine faint dark grayish brown

(10YR 4/2) mottles; moderate medium angular blocky structure; firm; few fine roots; slightly acid.

Thickness of the solum and depth to bedrock are more than 40 inches. The soil ranges from neutral through medium acid in each horizon.

The A horizon is very dark brown (10YR 2/2), very dark grayish brown (10YR 3/2), or dark brown (10YR 3/3). In pedons where the B horizon has hue of 4 or 5, the A horizon is 24 inches or more thick.

The B horizon is very dark grayish brown (10YR 3/2), dark brown (10YR 4/3, 7.5YR 3/2), brown (7.5YR 4/4, 5/4), or dark yellowish brown (10YR 3/4, 4/4). The B horizon is silty clay loam, silty clay, clay loam, or clay.

Gladeville series

The Gladeville series consists of shallow, sloping, well drained soils on uplands in the Nashville Basin. These soils are less than 10 inches thick. They formed in the residuum of flaggy, thin bedded limestone bedrock. Slopes range from 5 to 15 percent.

Gladeville soils are geographically associated with Barfield and Talbott soils. Barfield soils are higher on the slope, are 10 to 20 inches thick over rock, and have fewer flagstones than the Gladeville soils. Talbott soils, on slopes adjacent to Gladeville soils, are more than 20 inches thick over rock.

Typical pedon of Gladeville flaggy silty clay loam, 5 to 15 percent slopes, in a sparsely forested area 2 miles south of Percy Priest Dam, 100 yards south of exit to Anderson Road Park:

A11—0 to 4 inches; very dark grayish brown (10YR 3/2) flaggy silty clay loam; moderate medium granular structure; friable; many roots; 40 percent by volume thin flat fragments of limestone mostly 6 to 15 inches along the longer axis; few pieces of nodular limestone, a few slabs on the soil surface are as much as 3 feet long and 3 inches thick; mildly alkaline; abrupt wavy boundary.

A12—4 to 8 inches; dark brown (10YR 3/3) flaggy silty clay loam; moderate medium and fine subangular blocky structure; firm; common roots; about 50 percent by volume limestone fragments, flagstones, and nodules, most fragments are thin and less than 15 inches long, a few are larger; moderately alkaline; abrupt wavy boundary.

C—8 to 10 inches; brown (7.5YR 4/4) flaggy clay; massive; firm; coatings of calcium carbonate on rock fragments; 60 percent by volume limestone fragments; moderately alkaline.

R—10 inches; hard, thin bedded, flaggy limestone. In some places flags of the bed have thin clayey or shaly seams between them but are separable without such seams.

Thickness of the solum ranges from 4 to 8 inches. Depth to rock ranges from 6 to 10 inches. In most pedons the soil has free calcium carbonate in the lower 1 to 4 inches. In many places large ledges of bare rock extend a few inches above the surface of the soil. Some of these ledges are covered with a thin layer of soil. The content of limestone fragments ranges from 35 to 65 percent by volume. These fragments are mostly thin flat slabs, but some are nodular. The soil ranges from neutral through moderately alkaline.

The A horizon is very dark grayish brown (10YR 3/2) or dark brown (10YR 3/3).

The C horizon is brown (10YR 4/3, 7.5YR 4/4) flaggy clay. Thin seams, filled with soil similar to that of the A horizon, are between some of the flagstones. A few roots are in these seams.

Hampshire series

The Hampshire series consists of deep, sloping to moderately steep, well drained soils. These soils formed in material weathered from phosphatic limestone. They are on uplands in the outer part of the Nashville Basin. Slopes range from 5 to 20 percent.

Hampshire soils are geographically associated with the Armour and Stiversville soils. Armour soils, which are on footslopes, and Stiversville soils, on adjacent hilltops, have a loamy argillic horizon.

Typical pedon of Hampshire silt loam, 5 to 12 percent slopes, in a pasture 0.25 mile east of the intersection of I-24 and Old Hickory Boulevard:

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; weak medium granular structure; friable; many fine and medium roots; common fine and medium pores; medium acid; abrupt smooth boundary.

B21t—5 to 11 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; common fine and medium pores; discontinuous clay films; few fine fragments of shale and limestone; strongly acid; clear smooth boundary.

B22t—11 to 20 inches; strong brown (7.5YR 5/6) clay; strong medium subangular blocky structure; firm; common fine roots; few fine pores; continuous clay films; few fine fragments of shale and limestone; very strongly acid; clear smooth boundary.

B23t—20 to 27 inches; strong brown (7.5YR 5/6) clay; few fine faint yellowish brown mottles; moderate medium subangular blocky structure; firm; few fine roots; few fine pores; discontinuous clay films; few fine fragments of shale and limestone; very strongly acid; clear smooth boundary.

B24t—27 to 34 inches; strong brown (7.5YR 5/6) clay; common fine and medium faint yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; few fine pores; discontinuous clay films; few fragments less than 0.25 inch in size; very strongly acid; clear smooth boundary.

B25t—34 to 40 inches; yellowish brown (10YR 5/4) clay; common fine distinct strong brown (7.5YR 5/6) mottles; weak medium and coarse subangular blocky structure; firm; few fine roots; discontinuous clay films; very strongly acid; clear smooth boundary.

B3—40 to 45 inches; yellowish brown (10YR 5/4) clay; many fine to coarse distinct strong brown (7.5YR 5/6) mottles; weak coarse subangular blocky structure; firm; medium acid.

C—45 to 53 inches; yellowish brown (10YR 5/4) loam; in cracks of weathered phosphatic limestone and shale; medium acid; gradual smooth boundary.

R—53 inches; phosphatic limestone rock.

Thickness of the solum ranges from 30 to 50 inches. Depth to phosphatic limestone ranges from 40 to 65 inches. The soil is medium acid to very strongly acid except for the surface layer in limed areas and the layer just above bedrock, which ranges to slightly acid. Content of phosphorus ranges from medium to high throughout the profile.

The A horizon is brown (10YR 4/3, 5/3) dark yellowish brown (10YR 4/4), or yellowish brown (10YR 5/4, 5/6). It most commonly is silt loam, but in severely eroded areas the range includes silty clay loam and finer textures.

The B horizon is brown (7.5YR 4/4), strong brown (7.5YR 5/6), yellowish brown (10YR 5/4, 5/6, 5/8), or brownish yellow (10YR 6/6). It is clay, silty clay, silty clay loam, or clay loam. Fragments generally are less than one-half inch in size and range from few to common.

The C horizon has the range of colors given for the B horizon and, in places, is mottled with gray, yellow, and brown. It is loam, clay loam, or silty clay loam.

Humphreys series

The Humphreys series consists of deep, nearly level to gently sloping, well drained soils. These cherty soils are on low terraces and foot slopes in the outer part of the Nashville Basin. They formed in alluvium washed from soils that formed chiefly in cherty limestone residuum. Slopes range from 1 to 4 percent.

Humphreys soils are geographically associated with Ocana, Dellrose, and Stemley soils. Ocana soils, on the adjacent first bottoms, do not have an argillic horizon. Dellrose soils, on the hillsides above Humphreys soils, have a solum more than 60 inches thick. Stemley soils, on foot slopes and along drainageways, have a fragipan.

Typical pedon of Humphreys cherty silt loam, 1 to 4 percent slopes, in a field 0.6 mile northeast of the Cheatham County line along Little Morrowbone Creek and 500 feet east of the creek:

Ap—0 to 8 inches; dark brown (10YR 3/3) cherty silt loam; weak fine and medium granular structure; friable; common fine roots; few fine pores; 15 percent chert fragments ranging up to 3 inches in diameter; medium acid; abrupt smooth boundary.

B1—8 to 18 inches; brown (10YR 4/3) cherty silty clay loam; weak medium subangular blocky structure; friable; few fine roots; few fine pores; 25 percent chert by volume; medium acid; clear smooth boundary.

B21t—18 to 30 inches; brown (7.5YR 4/4) cherty silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; discontinuous clay films; 25 percent chert by volume; medium acid; abrupt smooth boundary.

B22t—30 to 55 inches; brown (7.5YR 4/4) cherty silty clay loam; few medium faint yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; discontinuous clay films; 25 percent chert by volume; strongly acid; clear smooth boundary.

C—55 to 62 inches; yellowish brown (10YR 5/6) cherty loam; few fine faint pale brown (10YR 6/3) mottles; weak fine and medium subangular blocky structure grading to massive; very friable; 30 percent chert by volume; strongly acid.

Thickness of the solum ranges from 40 to 60 inches. The soil ranges from medium acid to very strongly acid except where surface layers have been limed. Content of chert fragments in each horizon ranges from 15 to about 30 percent by volume. Most of the fragments are less than 3 inches in size. The content of chert below the solum ranges to 45 percent by volume.

The A horizon most commonly is dark brown (10YR 3/3). The range includes dark brown (7.5YR 3/2), very dark grayish brown (10YR 3/2), and dark yellowish brown (10YR 3/4). The A horizon ranges from 7 to 10 inches in thickness.

The B horizon is brown (7.5YR 4/4, 5/4; 10YR 4/3), strong brown (7.5YR 5/6), dark yellowish brown (10YR 4/4), or, rarely, reddish brown (5YR 4/4) or yellowish red (5YR 4/6). It most commonly is cherty silty clay loam or cherty clay loam. The range includes cherty silt loam and cherty loam.

The C horizon is yellowish brown (10YR 5/4, 5/6), brown (7.5YR 4/4, 5/4), strong brown (7.5YR 5/6), and dark yellowish brown (10YR 4/4). It is cherty loam, cherty silt loam, or cherty silty clay loam. In most pedons the C horizon is mottled in shades of brown or yellow.

Lindell series

The Lindell series consists of deep, nearly level, moderately well drained soils. These soils formed in alluvium on flood plains of the Cumberland, Harpeth, and Stones Rivers and their tributaries. Slopes range from 0 to 3 percent.

Lindell soils are geographically associated with Armour, Arrington, and Egam soils. Armour soils, on adjacent stream terraces, are well drained. Arrington soils, on flood plains, are well drained and have a mollic epipedon. Egam soils, on flood plains, have a fine textured control section and a mollic epipedon.

Typical pedon of Lindell silt loam in a field 0.1 mile north of Cleeces Ferry and 50 feet east of Old Hickory Boulevard:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; weak medium granular structure; friable; common fine roots; few small dark concretions; slightly acid; clear smooth boundary.

B1—7 to 11 inches; brown (10YR 4/3) silt loam; moderate medium granular and subangular blocky structure; friable; common fine roots; few small dark concretions; slightly acid; clear smooth boundary.

B21—11 to 15 inches; brown (10YR 4/3) silt loam; few medium faint yellowish brown (10YR 5/4) and grayish brown (10YR 5/2) mottles; moderate medium subangular blocky structure; friable; few fine roots; few small dark concretions; slightly acid; clear smooth boundary.

B22—15 to 26 inches; brown (10YR 5/3) silt loam; common fine and medium faint dark grayish brown (10YR 4/2) and dark yellowish brown (10YR 4/4) mottles; moderate medium subangular blocky structure; friable; few fine roots; few small dark concretions; slightly acid; clear smooth boundary.

B23—26 to 34 inches; dark grayish brown (10YR 4/2) silt loam; common medium distinct dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable; few fine roots; few small dark concretions; slightly acid; clear smooth boundary.

B3—34 to 52 inches; grayish brown (10YR 5/2) silty clay loam; common fine and medium faint gray (10YR 6/1) and distinct dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4) mottles; weak medium and coarse subangular blocky structure, massive in places; friable; common small dark concretions; medium acid; gradual smooth boundary.

C—52 to 62 inches; grayish brown (10YR 5/2) silty clay loam; common fine and medium distinct yellowish brown (10YR 5/4) and gray (10YR 6/1) mottles; massive; friable; common small dark concretions; medium acid.

Thickness of the solum ranges from 30 to 65 inches. The soil is neutral to medium acid. It is medium to high in phosphorus. The range in content of angular chert fragments or rounded pebbles is 0 to 20 percent in the A horizon, 0 to 15 percent in the B horizon, and 0 to 30 percent in the C horizon.

The A horizon is brown (10YR 4/3, 5/3; 7.5YR 4/2), dark grayish brown (10YR 4/2), or dark yellowish brown (10YR 4/4). The range includes very dark grayish brown (10YR 3/2) or dark brown (10YR 3/3) if the horizon is less than 10 inches thick.

The upper part of the B horizon is dominantly brown (10YR 4/3, 5/3), yellowish brown (10YR 5/4), or dark yellowish brown (10YR 4/4). It has brownish mottles within 20 inches of the soil surface. The lower part of the B horizon includes the colors named above and dark grayish brown (10YR 4/2), grayish brown (10YR 5/2), and light brownish gray (10YR 6/2). It is mottled with shades of gray, brown, and yellow and in places is so profusely mottled that no color is dominant. The B horizon is silt loam, loam, clay loam, or silty clay loam and includes thin subhorizons of silty clay. In many pedons, there is a buried A1 horizon of dark brown or very dark grayish brown silt loam between about 20 to 36 inches.

The C horizon is grayish brown (10YR 5/2; 2.5Y 5/2), dark grayish brown (10YR 4/2), or light brownish gray (10YR 6/2) and is mottled in shades of gray, brown, and yellow. It is silt loam, loam, or silty clay loam.

Lomond series

The Lomond series consists of deep, gently sloping, well drained soils on uplands. These soils formed in a mixture of loess and alluvium and in the underlying residuum of limestone. They are in the inner part of the Nashville Basin. Slopes range from 2 to 5 percent.

Lomond soils are geographically closely associated with Arrington, Lindell, and Talbott soils. The well drained Arrington soils and the moderately well drained Lindell soils are on adjacent first bottoms. Talbott soils, on adjacent slopes, are shallower over bedrock and have a fine textured argillic horizon.

Typical pedon of Lomond silt loam, 2 to 5 percent slopes, in a pasture 200 feet west of Granny Wright Lane Road and 200 feet south of Stewarts Ferry Pike:

Ap—0 to 9 inches; dark brown (7.5YR 3/2) silt loam; weak medium granular structure; very friable; common fine roots; few fine pores; slightly acid; abrupt smooth boundary.

B1—9 to 16 inches; yellowish red (5YR 4/6) silt loam; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few black and brown concretions; strongly acid; clear smooth boundary.

B21t—16 to 30 inches; yellowish red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; discontinuous clay films; few black and brown concretions; strongly acid; clear smooth boundary.

B22t—30 to 46 inches; yellowish red (5YR 4/6) silty clay loam; common medium and fine faint strong brown (7.5YR 5/6) and red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; discontinuous clay films; few black and brown concretions; less than 5 percent by volume chert fragments up to one-fourth inch in diameter; very strongly acid; clear smooth boundary.

IIB23t—46 to 65 inches; yellowish red (5YR 4/6) clay; common fine and medium distinct reddish yellow (7.5YR 6/6), red (2.5YR 4/6), and dark red (2.5YR

3/6) mottles; moderate medium subangular blocky and angular blocky structure; firm; discontinuous clay films; few black and brown concretions; less than 5 percent by volume chert fragments up to one-fourth inch in diameter; strongly acid.

Depth to limestone bedrock and thickness of the solum range from 5 to 8 feet or more. Thickness of the loess and alluvium above the IIB horizon ranges from 40 to 70 inches. The soil is strongly or very strongly acid except for the surface layer in limed areas and except the IIB horizon, which ranges from strongly to slightly acid. The content of chert is less than 5 percent in all horizons. A few black and brown concretions are in all horizons below the A horizon.

The A horizon is dark reddish brown (5YR 3/3, 3/4), dark brown (7.5YR 3/2; 10YR 3/3), or very dark grayish brown (10YR 3/2). It ranges from 7 to 10 inches in thickness.

The B1 horizon is yellowish red (5YR 4/6, 4/8, 5/6) and reddish brown (5YR 4/4, 5/4). It is silt loam or silty clay loam.

The B21t and B22t horizons are red (2.5YR 4/6, 4/8), yellowish red (5YR 4/6, 4/8), or dark red (2.5YR 3/6). Clay content of the control section averages between 25 and 35 percent.

The IIB horizon, which formed in residuum of limestone, is yellowish brown (10YR 5/4, 5/6, 5/8), strong brown (7.5YR 5/6), yellowish red (5YR 4/6, 5/6), or light olive brown (2.5Y 5/4). It is mottled in shades of brown, yellow, and red. It is most commonly clay, but the range includes silty clay.

Maury series

The Maury series consists of deep, gently sloping to moderately steep, well drained soils that formed in residuum of phosphatic limestone or in old alluvium and residuum of phosphatic limestone. These soils are on broad uplands in the outer part of the Nashville Basin. Slopes range from 2 to 20 percent.

Maury soils are geographically associated with Mimosa, Stiversville, and Hampshire soils. Hampshire and Mimosa soils have a strong brown or yellowish brown argillic horizon. Stiversville soils are 40 to 60 inches thick over bedrock.

Typical pedon of Maury silt loam, 2 to 7 percent slopes, in a pasture 0.25 mile north of Lebanon Road on Andrew Jackson Parkway; 50 feet east of Andrew Jackson Parkway:

Ap—0 to 7 inches; dark brown (10YR 4/3) silt loam; moderate fine granular structure; very friable; common fine roots; medium acid; abrupt smooth boundary.

B1—7 to 13 inches; brown (7.5YR 4/4) silty clay loam; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few small black concretions; medium acid; clear smooth boundary.

B21t—13 to 24 inches; reddish brown (5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; discontinuous clay films; few small pebbles; few small black concretions; strongly acid; clear smooth boundary.

B22t—24 to 36 inches; reddish brown (5YR 4/4) silty clay; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; continuous clay films; common fine black concretions; few small pebbles; strongly acid; clear smooth boundary.

B23t—36 to 48 inches; reddish brown (5YR 4/4) silty clay; moderate medium subangular blocky and angular blocky structure; firm; few fine roots; few fine pores; continuous clay films; common fine black concretions; strongly acid; clear smooth boundary.

B24t—48 to 65 inches; yellowish red (5YR 4/6) silty clay; moderate medium subangular blocky and angular blocky structure; firm; few fine pores; continuous clay films; common fine black concretions; strongly acid.

Solum thickness generally is more than 65 inches. The soil is medium acid or strongly acid except for the surface layer in limed areas. It is medium to high in phosphorus.

The A horizon is dark brown (10YR 4/3; 7.5YR 4/2) or dark yellowish brown (10YR 4/4).

The B1 horizon is brown (7.5YR 4/4) or reddish brown (5YR 4/4). It is silt loam or silty clay loam.

The B2t horizon is reddish brown (5YR 4/4, 4/3), yellowish red (5YR 4/6, 4/8, 5/6) or, rarely, red (2.5YR 4/6). It ranges from silty clay loam in the upper part to silty clay or clay in the lower part. In most pedons the B horizon has few small black concretions and few to common small pebbles.

Mimosa series

The Mimosa series consists of deep, gently sloping to steep, well drained soils. These soils formed mainly in clayey residuum of phosphatic limestone. They are on uplands in the outer part of the Nashville Basin. Slopes range from 2 to 35 percent.

Mimosa soils are geographically associated with Armour, Dellrose, and Maury soils. Armour soils, on foot slopes, contain less clay than Mimosa soils. Dellrose soils have a fine-loamy control section and are more than 15 percent chert by volume. Maury soils have a redder B horizon than Mimosa soils and are more than 60 inches thick over rock.

Typical pedon of Mimosa silt loam, 12 to 25 percent slopes, in a pasture 75 feet east of Baker's Station Road and 1 mile north of the intersection of Baker's Station Road and Old Springfield Road:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; moderate medium granular structure; friable; many fine roots;

common fine pores; few angular pebbles; medium acid; abrupt smooth boundary.

B21t—7 to 14 inches; brown (7.5YR 4/4) silty clay; few fine brown mottles; moderate medium subangular structure; firm; common fine roots; few fine pores; discontinuous clay films; few angular pebbles; strongly acid; clear smooth boundary.

B22t—14 to 25 inches; yellowish brown (10YR 5/6) clay; moderate medium angular blocky structure; firm; few fine roots; few fine pores; continuous clay films; few angular pebbles; strongly acid; gradual smooth boundary.

B23t—25 to 34 inches; yellowish brown (10YR 5/6) clay; strong medium angular blocky structure; very firm; few fine roots; few fine pores; continuous clay films; few reddish brown concretions; few angular pebbles; strongly acid; gradual smooth boundary.

B24t—34 to 48 inches; yellowish brown (10YR 5/6) clay; common medium faint brownish yellow (10YR 6/6), pale brown (10YR 6/3), and strong brown (7.5YR 5/6) mottles; strong medium and coarse angular blocky structure; very firm; continuous clay films; common small black and reddish brown concretions; few angular pebbles; strongly acid.

B3—48 to 55 inches; yellowish brown (10YR 5/6) clay; common medium distinct light brownish gray (10YR 6/2) mottles; weak medium and coarse angular blocky structure; very firm; medium acid.

R—55 inches; limestone bedrock.

Thickness of the solum and depth to limestone rock range from 40 to 60 inches. The soil is medium acid to very strongly acid except for the surface layer in limed areas and the layer just above bedrock, which is medium acid through mildly alkaline. Phosphorus content in each horizon is medium to high.

The A horizon is brown (10YR 4/3, 7.5YR 4/4), or dark yellowish brown (10YR 4/4). It is mainly silt loam but ranges to silty clay loam and finer textures in eroded places.

The Bt horizon is brown (10YR 4/3, 7.5YR 4/4), strong brown (7.5YR 5/6, 5/8), or yellowish brown (10YR 5/4, 5/6, 5/8). It is silty clay or clay. It is mottled in shades of brown and yellow in the lower part.

The B3 horizon is yellowish brown (10YR 5/6) or light olive brown (2.5Y 5/4). It has distinct mottles in shades of yellow or gray.

Mountview series

The Mountview series consists of deep, gently sloping to sloping, well drained soils. These soils are on broad hilltops on the Highland Rim. They formed in a silty mantle about 2 feet thick and in the underlying cherty clay or clay residuum of limestone. Slopes range from 3 to 10 percent.

Mountview soils are geographically associated with Baxter, Dickson, and Taft soils. The well drained Baxter soils have a cherty clayey B horizon. The moderately well drained Dickson soils and somewhat poorly drained Taft soils have a fragipan.

Typical pedon of Mountview silt loam, 3 to 10 percent slopes, in a pasture 0.5 mile east of the junction of Brick Church Pike and Dry Creek Road along Dry Creek Road, 75 feet southwest of Dry Creek Road:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; common fine and medium roots; common fine pores; medium acid; clear smooth boundary.

B1—7 to 11 inches; yellowish brown (10YR 5/6) silt loam; weak fine granular structure; friable; few fine roots; few fine pores; strongly acid; clear smooth boundary.

B21t—11 to 17 inches; strong brown (7.5YR 5/6) silt loam; weak fine and medium subangular blocky structure; friable; few fine roots; few fine pores; discontinuous clay films; strongly acid; clear smooth boundary.

B22t—17 to 28 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; discontinuous clay films; strongly acid; clear smooth boundary.

B23t—28 to 39 inches; strong brown (7.5YR 5/6) silty clay loam; few fine distinct yellowish red (5YR 4/6) and yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; discontinuous clay films; few weathered chert fragments; strongly acid; clear smooth boundary.

IIB24t—39 to 44 inches; yellowish red (5YR 4/6) cherty silty clay loam; few fine and medium, distinct yellowish brown (10YR 5/8) and yellow (10YR 7/6) mottles; moderate medium and coarse subangular blocky structure; firm; few fine pores; continuous clay films; few weathered chert fragments; strongly acid; gradual smooth boundary.

IIB25t—44 to 73 inches; yellowish red (5YR 5/6) cherty silty clay loam; common medium strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; firm; continuous clay films; few weathered chert fragments; very strongly acid.

Thickness of the solum is more than 6 feet. Depth to rock is more than 8 feet. The soil is strongly acid or very strongly acid except for the surface layer in areas that have been limed.

The A horizon is brown (10YR 4/3, 5/3), yellowish brown (10YR 5/4), pale brown (10YR 6/3), or dark grayish brown (10YR 4/2).

The B1 horizon is brown (7.5YR 5/4, 4/4) or yellowish brown (10YR 5/6, 5/8). The Bt horizon is yellowish brown (10YR 5/6, 5/8) or strong brown (7.5YR 5/6, 5/8). The lower part is mottled in shades of red, brown, or yellow. It is silty clay loam or silt loam.

The IIBt horizon is yellowish red (5YR 5/6, 4/6), red (2.5YR 4/6), or dark red (2.5YR 3/6). The fine earth fraction is silty clay loam, silty clay, or clay.

Newark series

The Newark series consists of deep, nearly level, somewhat poorly drained soils. These soils formed in loamy alluvium on flood plains of the Cumberland, Harpeth, and Stones Rivers. Slopes range from 0 to 2 percent.

Newark soils are geographically associated with Lindell, Byler, and Arrington soils. Lindell soils are moderately well drained. Byler soils have a fragipan. Arrington soils are well drained.

Typical pedon of Newark silt loam, in a pasture 0.5 mile west of Briley Parkway along McGavock Pike, 500 feet south of McGavock Pike:

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; common fine and medium roots; common fine pores; slightly acid; clear smooth boundary.

B1—6 to 10 inches; brown (10YR 4/3) silt loam; few medium distinct grayish brown (2.5Y 5/2) mottles; moderate medium subangular blocky structure; friable; few fine and medium roots; common fine pores; few small black concretions; slightly acid; clear smooth boundary.

B21—10 to 15 inches; brown (10YR 4/3) silt loam; common fine and medium distinct grayish brown (2.5Y 5/2) mottles; moderate medium subangular blocky structure; friable; few fine and medium roots; few fine pores; medium acid; clear wavy boundary.

B22g—15 to 43 inches; light brownish gray (2.5Y 6/2) silt loam; common medium prominent strong brown (7.5YR 5/6, 5/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; common black concretions; medium acid; gradual wavy boundary.

C—43 to 60 inches; brown (7.5YR 4/4) silty clay loam; common fine and medium distinct light olive brown (2.5Y 5/4) and gray (10YR 6/1) mottles; weak medium subangular blocky structure; friable; common black concretions; medium acid.

Solum thickness ranges from 24 to 44 inches. The soil ranges from medium acid to mildly alkaline throughout the profile.

The A horizon is brown (10YR 4/3, 5/3) or dark yellowish brown (10YR 4/4).

The B1 and B21 horizons are brown (10YR 4/3, 5/3; 7.5YR 4/4, 5/4) or olive brown (2.5Y 4/4) mottled with grayish brown (2.5Y 5/2; 10YR 5/2) or dark grayish brown (2.5Y 4/2; 10YR 4/2). They are silt loam or silty clay loam.

The B22g horizon is dark grayish brown (2.5Y 4/2), light brownish gray (2.5Y 6/2), or grayish brown (10YR 5/2; 2.5Y 5/2). It is mottled in shades of brown. It is silt loam or silty clay loam. Few to common black concretions occur throughout the horizon.

The C horizon is brown (7.5YR 4/4, 5/4; 10YR 4/3, 5/3) or light brownish gray (2.5Y 6/2; 10YR 6/2). It is mottled in shades of gray or brown. Texture is silt loam or silty clay loam.

Ocana series

The Ocana series consists of deep, nearly level, well drained soils that formed in alluvium. These soils are on flood plains and along narrow drainageways in the Nashville Basin. Slopes range from 1 to 3 percent.

Ocana soils are geographically associated with Arrington soils on flood plains; Armour soils on adjacent and nearby terraces and foot slopes; and Bodine, Dellrose, and Mimosa soils on uplands. Arrington soils have a mollic epipedon. Armour, Bodine, Dellrose, and Mimosa soils have an argillic horizon.

Typical pedon of Ocana cherty silt loam, in a cultivated field at the junction of U.S. Highway 70 and Newsom Station Road, 200 feet north of Highway 70:

Ap—0 to 8 inches; dark brown (10YR 4/3) cherty silt loam; weak medium granular structure; friable; common fine and medium roots; about 20 percent by volume chert fragments up to 3 inches across; slightly acid; clear wavy boundary.

B21—8 to 22 inches; dark brown (10YR 4/3) cherty silt loam; weak medium and fine subangular blocky structure; friable; common fine roots; about 25 percent by volume chert fragments up to 2 inches across; slightly acid; clear smooth boundary.

B22—22 to 36 inches; dark yellowish brown (10YR 4/4) cherty silt loam; weak fine and medium subangular blocky structure; friable; common fine roots; about 30 percent by volume chert fragments up to 2 inches across; slightly acid; clear wavy boundary.

B23—36 to 50 inches; dark yellowish brown (10YR 4/4) cherty silt loam; few fine faint brown and yellowish brown mottles; weak medium and fine subangular blocky structure; friable; few fine roots; about 30 percent by volume chert fragments up to 3 inches across; slightly acid; gradual wavy boundary.

C—50 to 62 inches; brown (10YR 4/3) cherty loam; common fine and medium faint dark grayish brown (10YR 4/2) and very dark gray (10YR 3/1) mottles; massive; friable; about 30 percent by volume chert fragments up to 3 inches across; slightly acid.

Thickness of the solum ranges from 35 to 60 inches. The soil ranges from medium acid through neutral in each horizon. Content of chert or rock fragments averages between 15 to 35 percent by volume in the control section but ranges up to 60 percent in subhorizons. The content of chert or rock fragments in the A horizon ranges from about 15 to 30 percent.

The A horizon is brown (10YR 4/3), dark yellowish brown (10YR 3/4, 4/4), or dark grayish brown (10YR 4/2). The range includes dark brown (10YR 3/3) if the horizon is less than 10 inches thick.

The B horizon is dark brown (10YR 4/3), dark yellowish brown (10YR 3/4, 4/4), yellowish brown (10YR 5/4), or brown (10YR 5/3; 7.5YR 4/4). The fine earth fraction is silt loam, loam, or clay loam.

In some pedons there is a buried A1 horizon of very dark grayish brown (10YR 3/2) cherty silt loam 3 to 6 inches thick 20 to 36 inches below the soil surface.

The C horizon is brown (10YR 4/3, 5/3), dark yellowish brown (10YR 4/4), yellowish brown (10YR 5/4, 5/6), or dark brown (7.5YR 4/4). Mottles in shades of gray, brown, and yellow range from few to common. The fine earth fraction is silt loam, loam, clay loam or, rarely, sandy loam.

Sequatchie series

The Sequatchie series consists of deep, nearly level to sloping, well drained soils. These soils are on low terraces along the Cumberland River. They formed in alluvium. Slopes range from 1 to 8 percent.

Sequatchie soils are geographically associated with Byler and Newark soils. Byler soils, on adjacent nearly level stream terraces, are moderately well drained and have a fragipan. Newark soils, on nearly level flood plains below Sequatchie soils, are somewhat poorly drained. Typical pedon of Sequatchie fine sandy loam, in a pasture 0.3 mile west of Old Hickory Dam along Crider Road, 25 feet south of Crider Road:

Ap—0 to 7 inches; dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; common fine roots; strongly acid; abrupt smooth boundary.

B1—7 to 13 inches; brown (7.5YR 4/4) loam; weak fine and medium subangular blocky structure; very friable; common fine roots; common fine pores; strongly acid; clear smooth boundary.

B21t—13 to 19 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; friable; common fine roots; common fine pores, discontinuous clay films; strongly acid; clear smooth boundary.

B22t—19 to 32 inches; brown (7.5YR 4/4) clay loam; moderate medium and coarse subangular blocky structure; friable; few fine roots; common fine pores; discontinuous clay films; strongly acid; clear smooth boundary.

B3—32 to 47 inches; brown (7.5YR 4/4) loam; weak medium subangular blocky structure; few fine roots; few fine pores; strongly acid; gradual smooth boundary.

C—47 to 65 inches; yellowish brown (10YR 5/6) sandy loam; massive; loose; strongly acid.

Thickness of the solum ranges from 32 to 55 inches. The soil is strongly acid except for the surface layer in limed areas. In some pedons a few pebbles are throughout the profile.

The A horizon is dark brown (10YR 3/3; 7.5YR 3/2) or dark yellowish brown (10YR 3/4). It is 7 to 10 inches thick.

The B1 horizon is brown (7.5YR 4/4; 10YR 4/3). It is loam or fine sandy loam.

The B2t horizon is reddish brown (5YR 4/4), brown (7.5YR 4/4; 10YR 4/3), or yellowish brown (10YR 5/4, 5/6). It is clay loam or loam. The clay content ranges from 18 to 30 percent.

The B3 horizon is strong brown (7.5YR 5/6, 5/8), yellowish brown (10YR 5/4, 5/6), or brown (7.5YR 4/4; 10YR 4/3). It is loam, clay loam, fine sandy loam, or sandy loam.

The C horizon is strong brown (7.5YR 5/6), brown (7.5YR 4/4), or yellowish brown (10YR 5/6). It is fine sandy loam, sandy loam, or loam and contains subhorizons of loamy sand. In some pedons it is mottled in shades of gray, brown, and yellow.

Stemley Series

The Stemley series consists of deep, gently sloping to sloping, moderately well drained soils that have a fragipan. These soils are on foot slopes and along drainageways in the outer part of the Nashville Basin. They formed in residuum of cherty limestone. Slopes range from 3 to 12 percent.

Stemley soils are geographically closely associated with Bodine, Sulphura, and Dellrose soils. Bodine and Sulphura soils, on adjacent and nearby hillsides, contain more than 35 percent chert fragments and do not have a fragipan. Dellrose soils, on higher lying slopes, are well drained and do not have a fragipan.

Typical pedon of Stemley cherty silt loam, 3 to 12 percent slopes, in a pasture along Hester Beasley Road, 25 feet east of Hester Beasley Road, 1.7 miles south on Hester Beasley Road from Highway 100, 0.7 mile west on Highway 100 from McCrory Road:

Ap—0 to 6 inches; brown (10YR 4/3) cherty silt loam; moderate medium granular structure; very friable; common fine and medium roots; common fine pores; 20 percent by volume small chert fragments; medium acid; clear smooth boundary.

B1—6 to 12 inches; yellowish brown (10YR 5/4) cherty silt loam; weak medium subangular blocky structure and weak fine granular; friable; common fine roots; common fine pores; 20 percent by volume small chert fragments; strongly acid; clear smooth boundary.

B2t—12 to 20 inches; yellowish brown (10YR 5/6) cherty silt loam; moderate medium subangular blocky structure; friable; common fine roots; few fine pores; discontinuous clay films; 25 percent by volume small chert fragments; strongly acid; clear smooth boundary.

Bx1—20 to 28 inches; light yellowish brown (10YR 6/4) cherty silty clay loam, common fine prominent strong brown (7.5YR 5/6) and few fine prominent light gray (10YR 7/2) and brownish yellow (10YR 6/6) mottles; massive weak coarse prismatic structure parting to weak angular blocky; firm and brittle; few fine roots in the upper 3 inches; about 50 percent, by volume, chert fragments 0.5 inch to 2 inches in diameter; strongly acid; clear smooth boundary.

Bx2—28 to 46 inches; yellowish brown (10YR 5/6) cherty silty clay loam, common fine and medium distinct light gray (10YR 7/2), pale brown (10YR 6/3), yellowish brown (10YR 5/8), and yellowish red (5YR 5/8) mottles; weak coarse prismatic structure parting to weak medium angular blocky; firm and brittle; about 60 percent, by volume, chert fragments 0.5 inch to 2 inches in diameter; strongly acid; gradual smooth boundary.

B3—46 to 65 inches; mottled brownish yellow (10YR 6/6), yellowish red (5YR 4/6), light gray (10YR 7/2), strong brown (7.5YR 5/8), and yellowish brown (10YR 5/8) cherty clay loam; weak medium subangular blocky structure; firm; about 30 percent by volume chert fragments 0.5 inch to 2 inches in diameter; strongly acid.

Solum thickness and depth to limestone bedrock are more than 60 inches. The soil ranges from strongly acid to very strongly acid except for the surface layer in areas that have been limed. Depth to the fragipan ranges from 18 to 32 inches. Chert content ranges from 15 to 35 percent in the horizons above the fragipan and from 30 to 60 percent in the pan. Chert content in the B horizon below the pan ranges from 15 to 50 percent.

The A horizon is brown (10YR 4/3) or dark yellowish brown (10YR 4/4). The B1 and B2t horizons are yellowish brown (10YR 5/4, 5/6). Texture is cherty loam or cherty silt loam.

The Bx horizon is yellowish brown (10YR 5/4, 5/6), light yellowish brown (10YR 6/4), or brownish yellow (10YR 6/6). Few to common fine or medium gray, brown, and yellow mottles are throughout the horizon. Texture is cherty silt loam or cherty silty clay loam.

The B3 horizon is mottled in shades of gray, yellow, brown, and red. It is cherty clay loam or cherty clay.

Stiversville series

The Stiversville series consists of deep, gently sloping to steep, well drained soils. These soils formed in residuum of phosphatic limestone. They are on ridgetops and side slopes in the outer part of the Nashville Basin. Slopes range from 3 to 25 percent.

Stiversville soils are geographically associated with Armour and Hampshire soils. Armour soils, on foot slopes, have a silt loam and silty clay loam B horizon. Hampshire soils, on adjacent hillsides, have a clay B horizon.

Typical pedon of Stiversville loam, 3 to 12 percent slopes, in a field 0.3 mile southeast of the intersection of Nolensville Road and Old Hickory Boulevard:

Ap—0 to 8 inches; dark brown (10YR 3/3) loam; moderate medium granular structure; friable; common fine roots; common fine and medium pores; few small fragments of limestone less than one-fourth inch in size; slightly acid; clear smooth boundary.

B1—8 to 12 inches; brown (7.5YR 4/4) loam; weak medium subangular blocky structure; friable; common fine roots; common fine and medium pores; few small fragments of limestone less than one-half inch in size; medium acid; clear smooth boundary.

B21t—12 to 20 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common fine and medium pores; few small fragments of limestone less than one-half inch in size; discontinuous clay films; medium acid; clear smooth boundary.

B22t—20 to 27 inches; reddish brown (5YR 4/4) clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common fine pores; few small fragments of limestone less than one-half inch in size; discontinuous clay films; medium acid; gradual smooth boundary.

B23t—27 to 42 inches; reddish brown (5YR 4/4) clay loam; few fine and medium distinct strong brown (7.5YR 5/6) and brown (7.5YR 5/4) mottles; mottles appear to be decomposed rock fragments; moderate fine and medium subangular blocky structure; friable; few fine and medium roots; few fine pores; few small fragments of limestone less than one-half inch in size; few fine black concretionary stains; continuous clay films; medium acid; gradual smooth boundary.

B24t—42 to 53 inches; reddish brown (5YR 4/4) clay loam; common fine and medium distinct brown (7.5YR 4/4) and strong brown (7.5YR 5/6) mottles; mottles appear to be weathered fragments of limestone; moderate fine and medium angular blocky and subangular blocky structure; friable; few fine and medium roots; few fine pores; few small fragments of limestone less than one-half inch in size; few fine black concretionary stains; continuous clay films; strongly acid; clear smooth boundary.

C—53 to 60 inches; weathered level-bedded phosphatic limestone rock.

R—60 inches; phosphatic limestone rock.

Thickness of the solum ranges from 40 to 55 inches. Depth to rock ranges from 40 to 60 inches. The soil is medium acid or strongly acid except for the surface layer in limed areas. Phosphorus content ranges from medium to high.

The A horizon is dark brown (10YR 3/3; 7.5YR 3/2) or brown (7.5YR 4/4).

The B horizon is brown (7.5YR 4/4), strong brown (7.5YR 5/6), or reddish brown (5YR 4/4). The lower part ranges to yellowish brown (10YR 5/4, 5/6) mottled in shades of brown or yellow. The B horizon is mostly clay loam or loam but can have thin subhorizons of silt loam, silty clay loam, and clay. Fragments in this horizon generally are less than one-half inch in size and range from few to common.

Sulphura series

The Sulphura series consists of moderately deep, sloping to very steep, somewhat excessively drained soils. These soils are in uplands. They formed in material weathered from shale or from shale and thinly bedded cherty limestone. Slopes range from 5 to 50 percent.

Sulphura soils are geographically associated with Bodine, Dellrose, and Mimosa soils. Bodine soils contain chert fragments and are more than 60 inches thick over bedrock. Dellrose soils, on the lower parts of hillsides, are more than 60 inches thick over bedrock. Mimosa soils have a clayey B horizon.

Typical pedon of Sulphura shaly silt loam, in an area of Bodine-Sulphura complex, 20 to 50 percent slopes, 4 miles west of Bellevue, 0.4 mile south of junction of Poplar Creek Road and Griffith Road, 25 feet east of road:

A1—0 to 1 inch; dark grayish brown (10YR 4/2) shaly silt loam; moderate medium granular structure; very friable; common fine and medium roots; common fine and medium pores; about 20 percent by volume shale chips; medium acid; abrupt smooth boundary.

A2—1 to 5 inches; brown (10YR 4/3) shaly silt loam; moderate medium granular structure; friable; common fine and medium roots; common fine and medium pores; about 20 percent by volume shale chips; few fragments of chert; medium acid; clear wavy boundary.

B21—5 to 12 inches; dark yellowish brown (10YR 4/4) shaly silt loam; moderate medium and fine subangular blocky structure; friable; common fine and medium roots; common fine pores; about 25 percent by volume shale chips; medium acid; clear wavy boundary.

B22—12 to 26 inches; yellowish brown (10YR 5/4) very shaly silt loam; weak fine and medium subangular blocky structure; friable; common fine and medium roots; common fine pores; about 50 percent by volume shale chips; medium acid.

R—26 inches; hard, dark shale.

Thickness of solum and depth to bedrock range from 20 to 40 inches. The soil is medium acid to strongly acid. The content of coarse fragments of shale or chert or both averages between 10 and 25 percent in the A horizon and between 35 and 55 percent in the B horizon.

The A1 horizon is dark grayish brown (10YR 4/2), dark brown (10YR 3/3, 4/3), or very dark grayish brown (10YR 3/2). The A2 horizon is brown (10YR 5/3, 4/3), pale brown (10YR 6/3), or yellowish brown (10YR 5/4).

The B horizon is yellowish brown (10YR 5/4, 5/6, 5/8), dark yellowish brown (10YR 4/4), strong brown (7.5YR 5/6), or brown (7.5YR 4/4, 5/4; 10YR 4/3). The fine earth fraction is silt loam, loam, or, rarely, silty clay loam or clay loam.

Taft series

The Taft series consists of deep, nearly level, somewhat poorly drained soils that have a fragipan. These soils formed in silty material, which is partly loess eroded from surrounding slopes, and in the underlying clayey residuum of limestone. They are on upland flats, on stream terraces, and in depressions on the Highland Rim. Slopes are mainly less than 2 percent.

Taft soils are geographically associated with Dickson and Mountview soils. The moderately well drained Dickson soils, at slightly higher elevations, do not have gray mottles in the upper 10 inches of the B horizon. The well drained Mountview soils, at higher elevations, do not have a fragipan.

Typical pedon of Taft silt loam in a wooded area 300 feet west of Whites Creek Pike, 0.3 mile north of junction of Old Clarksville Road and Whites Creek Pike:

A1—0 to 1 inch; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable; many fine and medium roots; common fine pores; very strongly acid; clear smooth boundary.

A2—1 to 7 inches; yellowish brown (10YR 5/4) silt loam; common medium faint light yellowish brown (10YR 6/4) and brown (10YR 5/3) mottles; moderate medium granular structure; friable; common fine and medium roots; common fine pores; few chert fragments less than one-fourth inch in diameter; very strongly acid; clear smooth boundary.

B2—7 to 22 inches; light olive brown (2.5Y 5/4) silt loam; common fine faint light brownish gray (2.5Y 6/2) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few chert fragments less than one-fourth inch in diameter; very strongly acid; abrupt smooth boundary.

B'x—22 to 43 inches; light yellowish brown (2.5Y 6/4) silty clay loam; common medium distinct dark yellowish brown (10YR 4/4), common fine distinct light brownish gray (2.5Y 6/2), and common medium faint light olive brown (2.5Y 5/4) mottles; weak thick platy structure breaking to moderate medium subangular blocky and angular blocky; friable and slightly brittle; few fine roots in the upper 3 inches;

few chert fragments less than one-fourth inch in diameter; very strongly acid; clear irregular boundary.

B'2t—43 to 61 inches; yellowish brown (10YR 5/4) silty clay loam; common medium prominent light gray (2.5Y 7/2) and common medium distinct grayish brown (10YR 5/2) mottles; moderate medium subangular blocky structure; firm; few fine fragments of chert less than one-fourth inch in diameter; very strongly acid.

Thickness of the solum is 60 inches or more. Thickness of the loess mantle ranges from 20 to 36 inches. Depth to the fragipan ranges from 20 to 36 inches. The soil is extremely acid to strongly acid; the Ap horizon is less acid where limed.

The A horizon is dark grayish brown (10YR 4/2), pale brown (10YR 6/3), brown (10YR 5/3), yellowish brown (10YR 5/4), or light olive brown (2.5Y 5/4).

The B2 horizon is light yellowish brown (10YR 6/4; 2.5Y 6/4), pale brown (10YR 6/3), brown (10YR 5/3), yellowish brown (10YR 5/4), or light olive brown (2.5Y 5/4). It has mottles in chroma of 2 or lower within 10 inches of its upper boundary. It is silt loam or silty clay loam.

The Bx horizon either is mottled gray, yellow, and brown or is dominantly yellowish brown (10YR 5/4), light yellowish brown (2.5Y 6.4), or light olive brown (2.5Y 5/4) and has common to many gray or brown mottles. It is silt loam or silty clay loam. In some pedons, few to common chert fragments and concretions are in the B2 and Bx horizons.

The B'2t horizon is yellowish brown (10YR 5/4) to red (2.5YR 4/6) with few to many gray, brown, and yellow mottles. It is silt loam, silty clay loam, or clay.

Talbott series

The Talbott series consists of moderately deep, gently sloping to sloping, well drained soils on uplands. These soils formed in residuum of limestone in the inner part of the Nashville Basin. Slopes range from 2 to 15 percent.

Talbott soils are geographically associated with Bradyville, Galdeville, and Lomond soils. Bradyville soils are more than 40 inches thick over bedrock. Gladeville soils are less than 12 inches thick over bedrock. Lomond soils are more than 60 inches thick over rock.

Typical pedon of Talbott silt loam, 2 to 10 percent slopes, in a wooded area 0.6 mile east of the bridge crossing Percy Priest Lake on Hobson Pike, 40 feet north of Hobson Pike:

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; moderate medium granular structure; friable; common fine and medium roots; strongly acid; abrupt smooth boundary.

B21t—5 to 10 inches; yellowish red (5YR 5/6) silty clay; moderate medium subangular blocky structure; firm; common fine roots; discontinuous clay films; strongly acid; clear smooth boundary.

B22t—10 to 21 inches; red (2.5YR 4/6) clay; strong medium subangular blocky structure; very firm; common fine roots; continuous clay skins; strongly acid; clear smooth boundary.

B23t—21 to 27 inches; red (2.5YR 4/6) clay; many fine and medium distinct strong brown (7.5YR 5/6) mottles; moderate coarse subangular blocky structure; very firm; few fine roots; continuous clay skins; strongly acid; clear wavy boundary.

B24t—27 to 32 inches; strong brown (7.5YR 5/6) clay; common medium distinct red (2.5YR 4/6) and yellowish brown (10YR 5/4) mottles; moderate coarse angular blocky structure; extremely firm; few fine roots; continuous clay skins; neutral.

R—32 inches; limestone bedrock.

Thickness of solum and depth to limestone rock range from 20 to 40 inches. The soil is medium acid or strongly acid except on the surface layer in limed areas and the horizon just above bedrock, which ranges to mildly alkaline.

The A horizon is brown (10YR 4/3, 5/3; 7.5YR 4/4, 5/4) or yellowish brown (10YR 5/4, 5/6). It most commonly is silt loam, but in severely eroded areas it is strong brown (7.5YR 5/6) or yellowish red (5YR 5/6) silty clay loam or clay.

The Bt horizon is yellowish red (5YR 4/6, 4/8, 5/6, 5/8), strong brown (7.5YR 5/6), reddish brown (5YR 4/4), reddish yellow (5YR 6/6, 6/8), or red (2.5YR 4/6, 4/8). It is clay or silty clay. It has few to common mottles in shades of brown and red in the lower part.

Wolftever series

The Wolftever series consists of deep, nearly level to gently sloping, moderately well drained soils. These soils formed in alluvium. They are on low terraces a few feet above the flood plains of the Cumberland River. Slopes range from 1 to 5 percent.

Wolftever soils are geographically closely associated with Beason and Lindell soils. Beason soils, alongside Wolftever soils on terraces, are somewhat poorly drained. Lindell soils, on the adjacent flood plains are moderately well drained but have a fine-loamy control section.

Typical pedon of Wolftever silt loam, in a pasture 0.2 mile west of Judge Hickman Ferry on Old Hickory Boulevard, 0.4 mile north of Old Hickory Boulevard, 0.4 mile west of the Cumberland River:

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; weak medium granular structure; friable; common fine and medium roots; medium acid; abrupt smooth boundary.

B1—6 to 11 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium subangular blocky structure; friable; common fine and medium roots; strongly acid; clear smooth boundary.

B21t—11 to 24 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; discontinuous clay films; strongly acid; clear smooth boundary.

B22t—24 to 37 inches; yellowish brown (10YR 5/4) silty clay loam; few medium distinct grayish brown (10YR 5/2) mottles; moderate medium subangular blocky structure; firm; discontinuous clay films; strongly acid; clear smooth boundary.

B23t—37 to 49 inches; yellowish brown (10YR 5/4) silty clay loam; common medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; firm; discontinuous clay films; strongly acid; clear smooth boundary.

B3—49 to 55 inches; yellowish brown (10YR 5/4) silty clay loam, many medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; firm; strongly acid; clear smooth boundary.

C—55 to 65 inches; dark yellowish brown (10YR 4/4) clay loam, many medium distinct light brownish gray (10YR 6/2) mottles; massive; firm; strongly acid; clear smooth boundary.

Solum thickness ranges from about 40 to 60 inches. The soil is strongly acid or very strongly acid except for the surface layer in limed areas.

The A horizon is brown (10YR 4/3) or dark grayish brown (10YR 4/2).

The B horizon is dark yellowish brown (10YR 4/4) or yellowish brown (10YR 5/4) and is mottled in shades of gray in the middle and lower parts. The B horizon is silty clay or silty clay loam.

The C horizon is loam or clay loam.

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glossary

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	More than 12

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bottom land. The normal flood plain of a stream, subject to flooding.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15.2 to 38.1 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Cobblestone (or cobble). A rounded or partly rounded fragment of rock 3 to 10 inches (7.5 to 25 centimeters) in diameter.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Compressible (in tables). Excessive decrease in volume of soft soil under load.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fine textured soil. Sandy clay, silty clay, and clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foot slope. The inclined surface at the base of a hill.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.5 centimeters) in diameter.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual*. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.5 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Sandy loam and fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, and silty clay loam.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan.*

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.20 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Residuum (residual soil material). Unconsolidated, weathered, or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and runoff water.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 mm in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

	Millimeters
Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial melt water. In nonglaciated regions, alluvium deposited by heavily loaded streams.

tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

Month	Temperature[1]						Precipitation[1]				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days[2]	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	47.6	28.7	38.2	74	1	19	4.50	2.25	6.33	8	3.5
February---	51.2	30.6	40.9	75	4	35	4.33	2.49	5.83	8	2.8
March------	59.3	38.0	48.7	82	18	136	5.56	3.29	7.59	9	2.0
April------	71.0	48.1	59.6	88	29	296	4.44	3.15	5.62	8	.1
May--------	79.5	57.0	68.2	92	37	564	4.27	2.66	5.71	7	.0
June-------	86.8	64.9	75.9	98	48	777	3.79	1.90	5.33	7	.0
July-------	89.8	68.8	79.3	99	56	908	3.91	1.99	5.46	7	.0
August-----	89.1	67.8	78.4	99	55	880	3.18	1.71	4.38	6	.0
September--	83.3	61.0	72.2	97	43	666	3.49	1.54	5.07	5	.0
October----	72.9	48.6	60.8	89	30	344	2.42	1.12	3.50	5	.0
November---	59.3	37.9	48.7	80	17	65	3.43	1.87	4.70	7	.5
December---	50.3	31.8	41.1	73	6	39	4.51	2.40	6.22	8	2.0
Year-----	70.0	48.6	59.3	101	-3	4,729	47.83	41.86	53.60	85	10.9

[1] Recorded in the period 1951-75 at Nashville, Tenn.

[2] A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50° F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

Probability	Temperature[1]		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	April 2	April 6	April 15
2 years in 10 later than--	March 27	April 1	April 12
5 years in 10 later than--	March 14	March 24	April 5
First freezing temperature in fall:			
1 year in 10 earlier than--	November 5	October 27	October 19
2 years in 10 earlier than--	November 10	October 31	October 24
5 years in 10 earlier than--	November 20	November 8	November 1

[1] Recorded in the period 1951-75 at Nashville, Tenn.

TABLE 3.--GROWING SEASON

Probability	Daily minimum temperature during growing season[1]		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	224	215	194
8 years in 10	233	220	199
5 years in 10	250	229	209
2 years in 10	266	237	219
1 year in 10	275	242	225

[1] Recorded in the period 1951-75 at Nashville, Tenn.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
AmB	Armour silt loam, 2 to 5 percent slopes	8,959	2.6
AmC	Armour silt loam, 5 to 12 percent slopes	2,053	0.6
AmC3	Armour silt loam, 5 to 15 percent slopes, severely eroded	1,467	0.4
Ar	Arrington silt loam	13,484	4.0
BbD	Barfield-Rock outcrop complex, 5 to 20 percent slopes	4,725	1.4
BbE	Barfield-Rock outcrop complex, 20 to 35 percent slopes	1,082	0.3
BcC	Baxter cherty silt loam, 3 to 12 percent slopes	2,760	0.8
BcD	Baxter cherty silt loam, 12 to 20 percent slopes	1,931	0.6
Be	Beason silt loam	688	0.2
BoD	Bodine cherty silt loam, 5 to 20 percent slopes	13,649	4.0
BsE	Bodine-Sulphura complex, 20 to 50 percent slopes	53,063	15.6
BvB	Bradyville silt loam, 2 to 5 percent slopes	857	0.3
ByB	Byler silt loam, 2 to 5 percent slopes	3,342	1.0
CaB	Capshaw silt loam, 2 to 5 percent slopes	547	0.2
DeD	Dellrose cherty silt loam, 12 to 20 percent slopes	6,173	1.8
DeE	Dellrose cherty silt loam, 20 to 40 percent slopes	2,199	0.6
DkB	Dickson silt loam, 1 to 4 percent slopes	2,432	0.7
Eg	Egam silty clay loam	909	0.3
GdC	Gladeville flaggy silty clay loam, 5 to 15 percent slopes	3,409	1.0
HmC	Hampshire silt loam, 5 to 12 percent slopes	1,302	0.4
HmD	Hampshire silt loam, 12 to 20 percent slopes	4,881	1.4
HuB	Humphreys cherty silt loam, 1 to 4 percent slopes	1,880	0.6
Ld	Lindell silt loam	5,672	1.7
Ln	Lindell-Urban land complex	5,416	1.6
LoB	Lomond silt loam, 2 to 5 percent slopes	773	0.2
MaB	Maury silt loam, 2 to 7 percent slopes	5,031	1.5
MaC	Maury silt loam, 7 to 20 percent slopes	790	0.2
McB	Maury-Urban land complex, 2 to 7 percent slopes	34,250	10.1
MmC	Mimosa silt loam, 2 to 12 percent slopes	15,849	4.7
MmD	Mimosa silt loam, 12 to 25 percent slopes	12,746	3.7
MoE3	Mimosa silty clay, 12 to 25 percent slopes, severely eroded	411	0.1
MrD	Mimosa-Rock outcrop complex, 5 to 20 percent slopes	9,459	2.8
MrE	Mimosa-Rock outcrop complex, 20 to 35 percent slopes	7,171	2.1
MsD	Mimosa-Urban land complex, 5 to 25 percent slopes	25,503	7.5
MvC	Mountview silt loam, 3 to 10 percent slopes	5,491	1.6
Ne	Newark silt loam	2,786	0.8
Oc	Ocana cherty silt loam	4,141	1.2
Pt	Pits	894	0.3
RtC	Rock outcrop-Talbott complex, 5 to 15 percent slopes	5,889	1.7
Se	Sequatchie fine sandy loam	1,983	0.6
SmC	Stemley cherty silt loam, 3 to 12 percent slopes	1,523	0.4
StC	Stiversville loam, 3 to 12 percent slopes	6,078	1.8
StD	Stiversville loam, 12 to 25 percent slopes	6,074	1.8
SvD	Stiversville-Urban land complex, 3 to 25 percent slopes	14,115	4.1
Ta	Taft silt loam	391	0.1
TbC	Talbott silt loam, 2 to 10 percent slopes	6,612	1.9
TcC3	Talbott clay, 5 to 15 percent slopes, severely eroded	298	0.1
TrC	Talbott-Rock outcrop complex, 5 to 15 percent slopes	9,784	2.9
TuC	Talbott-Urban land complex, 3 to 12 percent slopes	4,456	1.3
Wo	Wolftever silt loam	322	0.1
	Water (more than 40 acres)	14,600	4.3
	Total	340,300	100.0

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Corn	Tobacco	Soybeans	Wheat	Pasture
	Bu	Lb	Bu	Bu	AUM*
AmB----------------------- Armour	100	2,600	38	50	7.5
AmC----------------------- Armour	95	2,500	34	50	6.5
AmC3---------------------- Armour	70	2,200	25	45	6.0
Ar------------------------ Arrington	115	2,400	40	40	7.0
BbD----------------------- Barfield-Rock outcrop	---	---	---	---	4.0
BbE----------------------- Barfield-Rock outcrop	---	---	---	---	3.5
BcC----------------------- Baxter	90	2,600	35	40	8.0
BcD----------------------- Baxter	75	1,600	25	30	6.5
Be------------------------ Beason	60	---	35	---	7.0
BoD----------------------- Bodine	---	---	---	---	4.0
BsE----------------------- Bodine-Sulphura	---	---	---	---	---
BvB----------------------- Bradyville	80	1,900	28	50	6.0
ByB----------------------- Byler	75	---	30	45	6.5
CaB----------------------- Capshaw	65	1,700	25	45	6.0
DeD----------------------- Dellrose	75	2,000	---	40	6.0
DeE----------------------- Dellrose	---	---	---	---	4.0
DkB----------------------- Dickson	80	1,900	30	50	6.0
Eg------------------------ Egam	85	---	35	35	7.5
GdC----------------------- Gladeville	---	---	---	---	---
HmC----------------------- Hampshire	55	1,800	---	40	5.5
HmD----------------------- Hampshire	---	---	---	---	5.0

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Corn	Tobacco	Soybeans	Wheat	Pasture
	Bu	Lb	Bu	Bu	AUM*
HuB Humphreys	75	1,900	33	45	6.5
Ld Lindell	110	1,700	40	45	7.5
Ln Lindell-Urban land	---	---	---	---	---
LoB Lomond	90	2,300	38	46	7.5
MaB Maury	125	3,200	40	50	9.5
MaC Maury	90	2,600	30	40	8.0
McB Maury-Urban land	---	---	---	---	---
MmC Mimosa	50	1,300	20	45	4.5
MmD Mimosa	---	---	---	---	3.5
MoE3 Mimosa	---	---	---	---	3.0
MrD Mimosa-Rock outcrop	---	---	---	---	---
MrE Mimosa-Rock outcrop	---	---	---	---	---
MsD Mimosa-Urban land	---	---	---	---	---
MvC Mountview	82	2,250	34	54	6.5
Ne Newark	100	2,500	40	45	8.5
Oc Ocana	70	1,700	25	---	5.5
Pt. Pits					
RtC Rock outcrop-Talbott	---	---	---	---	---
Se Sequatchie	100	2,400	35	50	7.5
SmC Stemley	55	---	25	35	5.5
StC Stiversville	75	1,900	33	48	6.5
StD Stiversville	65	1,800	28	45	6.0
SvD Stiversville-Urban land	---	---	---	---	---

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Corn	Tobacco	Soybeans	Wheat	Pasture
	Bu	Lb	Bu	Bu	AUM*
Ta Taft	60	---	35	30	4.5
TbC Talbott	50	1,300	15	40	4.0
TcC3 Talbott	---	---	---	---	3.5
TrC Talbott-Rock outcrop	---	---	---	---	3.5
TuC Talbott-Urban land	---	---	---	---	---
Wo Wolftever	75	---	35	40	6.0

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available. Site index was determined at age 30 for eastern cottonwood and at age 50 for all other species]

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Important trees	Site index	
AmB, AmC, AmC3 Armour	2o	Slight	Slight	Slight	Eastern redcedar	43	Loblolly pine, black walnut, yellow-poplar, black locust.
					Loblolly pine	77	
					Black walnut	---	
					Northern red oak	---	
					White oak	---	
Ar Arrington	2o	Slight	Slight	Slight	Yellow-poplar	100	Yellow-poplar, black walnut, loblolly pine.
					White oak	80	
					Southern red oak	80	
					Loblolly pine	90	
					Black walnut	---	
BbD*, BbE*:							
Barfield	4d	Moderate	Moderate	Severe	Eastern redcedar	40	Eastern redcedar.
Rock outcrop.							
BcC Baxter	2o	Slight	Slight	Slight	Northern red oak	93	Eastern white pine, loblolly pine, shortleaf pine, black locust, yellow-poplar.
					Yellow-poplar	89	
					Shortleaf pine	80	
BcD Baxter	2r	Moderate	Moderate	Slight	Northern red oak	93	Eastern white pine, loblolly pine, shortleaf pine, black locust, yellow-poplar.
					Yellow-poplar	89	
					Shortleaf pine	80	
Be Beason	3w	Slight	Moderate	Slight	Yellow-poplar	90	Loblolly pine, sweetgum.
					Sweetgum	80	
					White oak	70	
					Southern red oak	70	
					Loblolly pine	80	
BoD Bodine	3f	Slight	Moderate	Moderate	Shortleaf pine	60	Loblolly pine, shortleaf pine.
					Yellow-poplar	90	
					Southern red oak	70	
					Black oak	70	
BsE:*							
Bodine	3f	Slight	Moderate	Moderate	Shortleaf pine	60	Loblolly pine, shortleaf pine.
					Yellow-poplar	90	
					Southern red oak	70	
					Black oak	70	
Sulphura	5d	Severe	Moderate	Severe	White oak	55	Shortleaf pine, Virginia pine, loblolly pine, eastern redcedar.
					Shortleaf pine	55	
					Virginia pine	55	
					Loblolly pine	65	
					Eastern redcedar	35	
BvB Bradyville	3o	Slight	Slight	Slight	Yellow-poplar	90	Black walnut, loblolly pine, eastern redcedar.
					Northern red oak	70	
					White oak	70	
					Eastern redcedar	---	
					Black walnut	---	
					Shagbark hickory	---	

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Important trees	Site index	
ByB Byler	3o	Slight	Slight	Slight	Yellow-poplar	90	Loblolly pine, shortleaf pine.
					Southern red oak	70	
					Loblolly pine	80	
					Shortleaf pine	70	
CaB Capshaw	3o	Slight	Slight	Slight	Loblolly pine	80	Loblolly pine, shortleaf pine.
					Yellow-poplar	90	
					Northern red oak	70	
DeD Dellrose	2o	Slight	Slight	Slight	Yellow-poplar	98	Yellow-poplar, black walnut, black locust, loblolly pine.
					Northern red oak	76	
					Loblolly pine	76	
					Black walnut	---	
					Sugar maple	---	
					Black cherry	---	
					Black locust	---	
					White ash	---	
DeE Dellrose	2r	Moderate	Moderate	Slight	Yellow-poplar	98	Yellow-poplar, black walnut, black locust, loblolly pine.
					Northern red oak	76	
					Loblolly pine	76	
					Black walnut	---	
					Sugar maple	---	
					Black cherry	---	
					Black locust	---	
					White ash	---	
DkB Dickson	3o	Slight	Slight	Slight	Yellow-poplar	92	Loblolly pine, shortleaf pine.
					White oak	73	
					Loblolly pine	80	
					Shortleaf pine	70	
Eg Egam	2o	Slight	Slight	Slight	Yellow-poplar	100	Yellow-poplar, black walnut, loblolly pine.
					Loblolly pine	90	
					Black walnut	---	
					Southern red oak	90	
					Water oak	90	
GdC Gladeville	5x	Moderate	Moderate	Severe	Eastern redcedar	35	
HmC, HmD Hampshire	3o	Slight	Slight	Slight	Northern red oak	70	Black walnut, loblolly pine, black locust.
					Loblolly pine	80	
					Eastern redcedar	50	
					Black walnut	---	
					Black locust	---	
					Sugar maple	---	
HuB Humphreys	2o	Slight	Slight	Slight	Yellow-poplar	100	Yellow-poplar, black walnut, loblolly pine.
					Northern red oak	70	
					Shortleaf pine	70	
					Loblolly pine	90	
					Black walnut	---	
Ld Lindell	2w	Slight	Moderate	Slight	Yellow-poplar	100	Yellow-poplar, black walnut, loblolly pine.
					Northern red oak	80	
					Loblolly pine	90	
					Sweetgum	90	
Ln:*							
Lindell	2w	Slight	Moderate	Slight	Yellow-poplar	100	Yellow-poplar, black walnut, loblolly pine.
					Northern red oak	80	
					Loblolly pine	90	
					Sweetgum	90	
Urban land.							

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Important trees	Site index	
LoB---------------- Lomond	2o	Slight	Slight	Slight	Yellow-poplar-----------	100	Yellow-poplar, black walnut, loblolly pine.
					Loblolly pine----------	90	
					White oak--------------	80	
					Northern red oak-------	80	
					Black walnut-----------	---	
					Shortleaf pine---------	80	
MaB, MaC----------- Maury	2o	Slight	Slight	Slight	Northern red oak-------	80	Black walnut, yellow-poplar, white ash, black locust, eastern white pine, shortleaf pine.
McB:*							
Maury-------------	2o	Slight	Slight	Slight	Northern red oak-------	80	Black walnut, yellow-poplar, white ash, black locust, eastern white pine, shortleaf pine.
Urban land.							
MmC, MmD----------- Mimosa	3o	Slight	Slight	Slight	Southern red oak-------	70	Loblolly pine, black locust, eastern redcedar.
					Loblolly pine----------	80	
					Eastern redcedar-------	50	
					Black walnut-----------	---	
					Black locust-----------	---	
					Shagbark hickory-------	---	
MoE3--------------- Mimosa	4c	Moderate	Moderate	Moderate	Loblolly pine----------	70	Loblolly pine, eastern redcedar.
					Eastern redcedar-------	45	
MrD:*							
Mimosa------------	3o	Slight	Slight	Slight	Southern red oak-------	70	Loblolly pine, black locust, eastern redcedar.
					Loblolly pine----------	80	
					Eastern redcedar-------	50	
					Black walnut-----------	---	
					Black locust-----------	---	
					Shagbark hickory-------	---	
Rock outcrop.							
MrE:*							
Mimosa------------	3r	Moderate	Moderate	Slight	Loblolly pine----------	80	Loblolly pine, eastern redcedar, black locust.
					Eastern redcedar-------	50	
					Black locust-----------	---	
Rock outcrop.							
MsD:*							
Mimosa------------	3o	Slight	Slight	Slight	Southern red oak-------	70	Loblolly pine, black locust, eastern redcedar.
					Loblolly pine----------	80	
					Eastern redcedar-------	50	
					Black walnut-----------	---	
					Black locust-----------	---	
					Shagbark hickory-------	---	
Urban land.							
MvC---------------- Mountview	3o	Slight	Slight	Slight	Yellow-poplar----------	90	Shortleaf pine, loblolly pine, Virginia pine.
					White oak--------------	70	
					Shortleaf pine---------	65	
					Loblolly pine----------	80	
					Virginia pine----------	62	

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Important trees	Site index	
Ne Newark	1w	Slight	Moderate	Slight	Pin oak	99	Eastern cottonwood, sweetgum, post oak, loblolly pine, red maple, American sycamore, eastern white pine, yellow-poplar.
					Eastern cottonwood	94	
					Northern red oak	85	
					Yellow-poplar	95	
					Sweetgum	88	
Oc Ocana	2o	Slight	Slight	Slight	Yellow-poplar	100	Yellow-poplar, black walnut, loblolly pine.
					White oak	80	
					Loblolly pine	90	
RtC:* Rock outcrop.							
Talbott	3c	Slight	Moderate	Moderate	Northern red oak	65	Loblolly pine, shortleaf pine, Virginia pine, eastern redcedar, loblolly pine.
					Loblolly pine	80	
					Shortleaf pine	64	
					Virginia pine	70	
					Eastern redcedar	46	
Se Sequatchie	2o	Slight	Slight	Slight	Yellow-poplar	100	Yellow-poplar, black walnut.
					White oak	80	
					Loblolly pine	90	
SmC Stemley	3o	Slight	Slight	Slight	Yellow-poplar	90	Yellow-poplar, black walnut, loblolly pine.
					White oak	70	
					Shortleaf pine	72	
					Loblolly pine	78	
StC, StD Stiversville	3o	Slight	Slight	Slight	Yellow-poplar	88	Yellow-poplar, black walnut, black locust, loblolly pine.
					Southern red oak	75	
					Loblolly pine	75	
					Black walnut	---	
					Black locust	---	
					Eastern redcedar	50	
SvD:* Stiversville	3o	Slight	Slight	Slight	Yellow-poplar	88	Yellow-poplar, black walnut, black locust, loblolly pine.
					Southern red oak	75	
					Loblolly pine	75	
					Black walnut	---	
					Black locust	---	
					Eastern redcedar	50	
Urban land.							
Ta Taft	3w	Slight	Moderate	Moderate	Yellow-poplar	90	Loblolly pine.
					White oak	60	
					Loblolly pine	85	
					Sweetgum	80	
					Shortleaf pine	60	
TbC Talbott	3c	Slight	Moderate	Moderate	Northern red oak	65	Loblolly pine, shortleaf pine, Virginia pine, eastern redcedar, loblolly pine.
					Loblolly pine	80	
					Shortleaf pine	64	
					Virginia pine	70	
					Eastern redcedar	46	
TcC3 Talbott	4c	Slight	Moderate	Severe	Loblolly pine	70	Virginia pine, eastern redcedar.
					Virginia pine	60	
					Eastern redcedar	40	

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Important trees	Site index	
TrC:*							
Talbott	3c	Slight	Moderate	Moderate	Northern red oak Loblolly pine Shortleaf pine Virginia pine Eastern redcedar	65 80 64 70 46	Loblolly pine, shortleaf pine, Virginia pine, eastern redcedar, loblolly pine.
Rock outcrop.							
TuC:*							
Talbott	3c	Slight	Moderate	Moderate	Northern red oak Loblolly pine Shortleaf pine Virginia pine Eastern redcedar	65 80 64 70 46	Loblolly pine, shortleaf pine, Virginia pine, eastern redcedar, loblolly pine.
Urban land.							
Wo Wolftever	3w	Slight	Moderate	Moderate	Yellow-poplar White oak Southern red oak Willow oak Sweetgum Loblolly pine	90 70 70 80 80 80	Yellow-poplar, loblolly pine.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
AmB Armour	Slight	Slight	Moderate: slope.	Slight.
AmC, AmC3 Armour	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Ar Arrington	Severe: floods.	Slight	Moderate: floods.	Slight.
BbD:*				
Barfield	Moderate: too clayey, slope.	Moderate: too clayey, slope.	Severe: slope, depth to rock.	Moderate: too clayey.
Rock outcrop.				
BbE:*				
Barfield	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.
Rock outcrop.				
BcC Baxter	Moderate: small stones.	Moderate: small stones.	Severe: slope, small stones.	Moderate: small stones.
BcD Baxter	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope, small stones.
Be Beason	Severe: wetness, floods.	Moderate: floods, wetness.	Severe: floods.	Moderate: wetness, floods.
BoD Bodine	Severe: small stones.	Severe: small stones.	Severe: slope, small stones.	Severe: small stones.
BsE:*				
Bodine	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.
Sulphura	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.
BvB Bradyville	Slight	Slight	Moderate: slope.	Slight.
ByB Byler	Slight	Slight	Moderate: slope.	Slight.
CaB Capshaw	Moderate: wetness, percs slowly.	Slight	Moderate: slope, percs slowly.	Slight.
DeD Dellrose	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope, small stones.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
DeE Dellrose	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.
DkB Dickson	Slight	Slight	Moderate: slope, percs slowly.	Slight.
Eg Egam	Severe: floods.	Moderate: too clayey.	Moderate: slope, floods, too clayey.	Moderate: too clayey.
GdC Gladeville	Severe: small stones.	Moderate: small stones.	Severe: slope, small stones, depth to rock.	Moderate: small stones.
HmC Hampshire	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
HmD Hampshire	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
HuB Humphreys	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Moderate: small stones.
Ld Lindell	Severe: floods.	Slight	Moderate: floods.	Slight.
Ln:* Lindell	Severe: floods.	Slight	Moderate: floods.	Slight.
Urban land.				
LoB Lomond	Slight	Slight	Moderate: slope.	Slight.
MaB Maury	Slight	Slight	Moderate: slope.	Slight.
MaC Maury	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
McB:* Maury	Slight	Slight	Moderate: slope.	Slight.
Urban land.				
MmC Mimosa	Slight	Slight	Severe: slope.	Slight.
MmD Mimosa	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
MoE3 Mimosa	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: too clayey, slope.
MrD:* Mimosa	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Rock outcrop.				

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
MrE:*				
Mimosa	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Rock outcrop.				
MsD:*				
Mimosa	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
Urban land.				
MvC Mountview	Slight	Slight	Severe: slope.	Slight.
Ne Newark	Severe: floods, wetness.	Moderate: wetness, floods.	Severe: wetness, floods.	Moderate: wetness, floods.
Oc Ocana	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Moderate: small stones.
Pt.* Pits				
RtC:* Rock outcrop.				
Talbott	Moderate: slope, percs slowly.	Moderate: slope.	Severe: slope.	Slight.
Se Sequatchie	Slight	Slight	Moderate: slope.	Slight.
SmC Stemley	Moderate: percs slowly, wetness, small stones.	Moderate: small stones.	Moderate: slope, wetness, small stones.	Moderate: small stones.
StC Stiversville	Slight	Slight	Severe: slope.	Slight.
StD Stiversville	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
SvD:*				
Stiversville	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Urban land.				
Ta Taft	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
TbC Talbott	Moderate: percs slowly.	Slight	Severe: slope.	Slight.
TcC3 Talbott	Moderate: slope, percs slowly.	Moderate: slope, too clayey.	Severe: slope.	Moderate: too clayey.
TrC:*				
Talbott	Moderate: slope, percs slowly.	Moderate: slope.	Severe: slope.	Slight.
Rock outcrop.				

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
TuC:*				
Talbott	Moderate: percs slowly.	Slight	Severe: slope.	Slight.
Urban land.				
Wo Wolftever	Severe: floods.	Moderate: floods.	Moderate: floods, wetness.	Slight.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AmB Armour	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
AmC, AmC3 Armour	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Ar Arrington	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
BbD,* BbE:* Barfield	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Rock outcrop.										
BcC Baxter	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
BcD Baxter	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Be Beason	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
BoD Bodine	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
BsE:* Bodine	Very poor.	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.
Sulphura	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
BvB Bradyville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ByB Byler	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
CaB Capshaw	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
DeD Dellrose	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
DeE Dellrose	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
DkB Dickson	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Eg Egam	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
GdC Gladeville	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
HmC Hampshire	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 8.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
HmD Hampshire	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
HuB Humphreys	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Ld Lindell	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Ln:*										
Lindell	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Urban land.										
LoB Lomond	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MaB Maury	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MaC Maury	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
McB:*										
Maury	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Urban land.										
MmC Mimosa	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MmD Mimosa	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
MoE3 Mimosa	Poor	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
MrD:*										
Mimosa	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Rock outcrop.										
MrE:*										
Mimosa	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Rock outcrop.										
MsD:*										
Mimosa	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Urban land.										
MvC Mountview	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Poor.
Ne Newark	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
Oc Ocana	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Poor.

See footnote at end of table.

TABLE 8.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Pt.* Pits										
RtC:* Rock outcrop.										
Talbott-----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Se----------------- Sequatchie	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
SmC---------------- Stemley	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
StC---------------- Stiversville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
StD---------------- Stiversville	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
SvD:* Stiversville------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Urban land.										
Ta----------------- Taft	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
TbC---------------- Talbott	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
TcC3--------------- Talbott	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
TrC:* Talbott-----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Rock outcrop.										
TuC:* Talbott-----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Urban land.										
Wo----------------- Wolftever	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
AmB Armour	Slight	Slight	Slight	Slight	Moderate: low strength.
AmC, AmC3 Armour	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, low strength.
Ar Arrington	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
BbD:*					
Barfield	Severe: depth to rock, too clayey.	Severe: depth to rock, shrink-swell.	Severe: depth to rock, shrink-swell.	Severe: slope, depth to rock, shrink-swell.	Severe: depth to rock, shrink-swell.
Rock outcrop.					
BbE:*					
Barfield	Severe: slope, depth to rock, too clayey.	Severe: slope, depth to rock, shrink-swell.	Severe: slope, depth to rock, shrink-swell.	Severe: slope, depth to rock, shrink-swell.	Severe: slope, depth to rock, shrink-swell.
Rock outcrop.					
BcC Baxter	Severe: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.
BcD Baxter	Severe: slope, too clayey.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.
Be Beason	Severe: wetness, floods.	Severe: wetness, floods.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.
BoD Bodine	Moderate: slope, small stones.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
BsE:*					
Bodine	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Sulphura	Severe: depth to rock, slope, small stones.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
BvB Bradyville	Severe: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell, depth to rock.	Moderate: shrink-swell.	Severe: low strength.
ByB Byler	Moderate: wetness, cemented pan.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength.
CaB Capshaw	Severe: too clayey.	Moderate: shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: shrink-swell.	Severe: low strength.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
DeD, DeE Dellrose	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
DkB Dickson	Moderate: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength.
Eg Egam	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods, low strength.
GdC Gladeville	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
HmC Hampshire	Moderate: too clayey, depth to rock.	Moderate: slope, shrink-swell.	Moderate: slope, shrink-swell, depth to rock.	Severe: slope.	Severe: low strength.
HmD Hampshire	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.
HuB Humphreys	Moderate: small stones.	Slight	Slight	Slight	Moderate: low strength.
Ld Lindell	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Ln:*					
Lindell	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Urban land.					
LoB Lomond	Slight	Slight	Slight	Slight	Moderate: low strength.
MaB Maury	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.
MaC Maury	Moderate: slope, too clayey.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, low strength.
McB:*					
Maury	Moderate: too clayey.	Slight	Slight	Moderate: slope, low strength.	Moderate: low strength.
Urban land.					
MmC Mimosa	Severe: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell, depth to rock.	Moderate: shrink-swell, slope.	Severe: low strength.
MmD, MoE3 Mimosa	Severe: slope, too clayey.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.
MrD:*					
Mimosa	Severe: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell, depth to rock.	Severe: slope.	Severe: low strength.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
MrD:*					
Rock outcrop.					
MrE:*					
Mimosa	Severe: slope, too clayey.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.
Rock outcrop.					
MsD:*					
Mimosa	Severe: slope, too clayey.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.
Urban land.					
MvC Mountview	Slight	Slight	Slight	Moderate: slope.	Moderate: low strength.
Ne Newark	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, frost action, wetness.
Oc Ocana	Moderate: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Moderate: floods.
Pt.* Pits					
RtC:*					
Rock outcrop.					
Talbott	Severe: too clayey, depth to rock.	Moderate: slope, depth to rock, shrink-swell.	Severe: depth to rock.	Severe: slope.	Severe: low strength.
Se Sequatchie	Slight	Slight	Slight	Slight	Moderate: low strength.
SmC Stemley	Moderate: wetness.	Slight	Moderate: wetness.	Moderate: wetness, slope.	Moderate: low strength.
StC Stiversville	Moderate: depth to rock.	Slight	Moderate: depth to rock.	Moderate: slope.	Moderate: low strength.
StD Stiversville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
SvD:*					
Stiversville	Moderate: slope, depth to rock.	Moderate: slope.	Moderate: slope, depth to rock.	Severe: slope.	Moderate: slope, low strength.
Urban land.					
Ta Taft	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
TbC Talbott	Severe: too clayey, depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: depth to rock.	Moderate: slope, shrink-swell, depth to rock.	Severe: low strength.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
TcC3-------------- Talbott	Severe: too clayey, depth to rock.	Moderate: slope, depth to rock, shrink-swell.	Severe: depth to rock.	Severe: slope.	Severe: low strength.
TrC:*					
Talbott----------	Severe: too clayey, depth to rock.	Moderate: slope, depth to rock, shrink-swell.	Severe: depth to rock.	Severe: slope.	Severe: low strength.
Rock outcrop.					
TuC:*					
Talbott----------	Severe: too clayey, depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: depth to rock.	Moderate: slope, shrink-swell, depth to rock.	Severe: low strength.
Urban land.					
Wo---------------- Wolftever	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AmB Armour	Slight	Moderate: slope, seepage.	Moderate: too clayey.	Slight	Good.
AmC, AmC3 Armour	Moderate: slope.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Fair: slope.
Ar Arrington	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Good.
BbD:* Barfield	Severe: depth to rock, percs slowly.	Severe: slope, depth to rock.	Severe: depth to rock, too clayey.	Moderate: slope.	Poor: thin layer, too clayey.
Rock outcrop.					
BbE:* Barfield	Severe: slope, depth to rock, percs slowly.	Severe: slope, depth to rock.	Severe: slope, depth to rock, too clayey.	Severe: slope.	Poor: slope, thin layer, too clayey.
Rock outcrop.					
BcC Baxter	Moderate: percs slowly.	Severe: slope.	Severe: too clayey.	Slight	Poor: too clayey.
BcD Baxter	Severe: slope.	Severe: slope.	Severe: too clayey.	Severe: slope.	Poor: slope, too clayey.
Be Beason	Severe: wetness, floods, percs slowly.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Fair: too clayey.
BoD Bodine	Moderate: slope.	Severe: seepage, slope, small stones.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope, small stones.
BsE:* Bodine	Severe: slope.	Severe: seepage, slope, small stones.	Severe: slope, seepage.	Severe: slope, seepage.	Poor: slope.
Sulphura	Severe: depth to rock, slope.	Severe: depth to rock, slope, small stones.	Severe: depth to rock, slope.	Severe: slope.	Poor: small stones, slope.
BvB Bradyville	Moderate: percs slowly, depth to rock.	Moderate: slope, seepage, depth to rock.	Severe: depth to rock, too clayey.	Slight	Poor: too clayey, thin layer.
ByB Byler	Severe: percs slowly, wetness.	Moderate: slope.	Moderate: too clayey, wetness.	Slight	Fair: too clayey.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
CaB----------------- Capshaw	Severe: percs slowly.	Moderate: slope, depth to rock.	Severe: too clayey, wetness, depth to rock.	Moderate: wetness.	Poor: too clayey.
DeD----------------- Dellrose	Severe: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: seepage, slope.	Poor: slope.
DeE----------------- Dellrose	Severe: slope.	Severe: slope, seepage.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
DkB----------------- Dickson	Severe: percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Good.
Eg------------------ Egam	Severe: floods, percs slowly, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Fair: too clayey.
GdC----------------- Gladeville	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: thin layer.
HmC----------------- Hampshire	Moderate: slope, percs slowly, depth to rock.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: slope.	Poor: too clayey, thin layer.
HmD----------------- Hampshire	Severe: slope.	Severe: slope.	Severe: depth to rock, too clayey.	Severe: slope.	Poor: too clayey, thin layer.
HuB----------------- Humphreys	Slight-----------	Severe: seepage.	Severe: seepage, wetness.	Severe: seepage.	Fair: small stones, too clayey.
Ld------------------ Lindell	Severe: floods, wetness.	Severe: wetness, floods.	Severe: floods.	Severe: floods.	Good.
Ln:*					
Lindell------------	Severe: floods, wetness.	Severe: wetness, floods.	Severe: floods.	Severe: floods.	Good.
Urban land.					
LoB----------------- Lomond	Slight-----------	Moderate: slope, seepage.	Moderate: too clayey.	Slight-----------	Fair: too clayey.
MaB----------------- Maury	Slight-----------	Moderate: slope, seepage.	Moderate: too clayey.	Slight-----------	Fair: too clayey.
MaC----------------- Maury	Moderate: slope.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Fair: slope, too clayey.
McB:*					
Maury--------------	Slight-----------	Moderate: slope, seepage.	Moderate: too clayey.	Slight-----------	Fair: too clayey.
Urban land.					

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
MmC Mimosa	Severe: percs slowly.	Severe: slope.	Severe: too clayey, depth to rock.	Slight	Poor: too clayey.
MmD, MoE3 Mimosa	Severe: slope, percs slowly.	Severe: slope.	Severe: too clayey, depth to rock.	Severe: slope.	Poor: slope, too clayey.
MrD:*					
Mimosa	Severe: percs slowly.	Severe: slope.	Severe: too clayey, depth to rock.	Moderate: slope.	Poor: too clayey.
Rock outcrop.					
MrE:*					
Mimosa	Severe: slope, percs slowly.	Severe: slope.	Severe: slope, too clayey, depth to rock.	Severe: slope.	Poor: slope, too clayey.
Rock outcrop.					
MsD:*					
Mimosa	Severe: slope, percs slowly.	Severe: slope.	Severe: too clayey, depth to rock.	Severe: slope.	Poor: slope, too clayey.
Urban land.					
MvC Mountview	Slight	Moderate: slope, seepage.	Slight	Slight	Good.
Ne Newark	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
Oc Ocana	Moderate: floods.	Severe: floods, seepage.	Severe: floods.	Severe: floods.	Fair: small stones.
Pt.* Pits					
RtC:* Rock outcrop.					
Talbott	Severe: percs slowly, depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Moderate: slope.	Poor: too clayey.
Se Sequatchie	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
SmC Stemley	Severe: wetness, percs slowly.	Moderate: slope, small stones, seepage.	Severe: wetness.	Severe: wetness.	Fair: small stones.
StC Stiversville	Moderate: depth to rock.	Severe: slope, seepage.	Severe: seepage, depth to rock.	Severe: seepage.	Fair: thin layer.
StD Stiversville	Severe: slope.	Severe: slope, seepage.	Severe: seepage, depth to rock.	Severe: slope, seepage.	Poor: slope.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
SvD:*					
Stiversville	Moderate: slope, depth to rock.	Severe: slope, seepage.	Severe: seepage, depth to rock.	Severe: seepage.	Fair: slope, thin layer.
Urban land.					
Ta Taft	Severe: percs slowly, wetness.	Slight	Severe: wetness.	Severe: wetness.	Poor: wetness.
TbC Talbott	Severe: percs slowly, depth to rock.	Severe: depth to rock.	Severe: depth to rock, too clayey.	Slight	Poor: too clayey.
TcC3 Talbott	Severe: percs slowly, depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Moderate: slope.	Poor: too clayey.
TrC:*					
Talbott	Severe: percs slowly, depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Moderate: slope.	Poor: too clayey.
Rock outcrop.					
TuC:*					
Talbott	Severe: percs slowly, depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Slight	Poor: too clayey.
Urban land.					
Wo Wolftever	Severe: floods, percs slowly.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Poor: too clayey, thin layer.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and "poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Roadfill	Topsoil
AmB------------------- Armour	Fair: low strength.	Good.
AmC, AmC3------------- Armour	Fair: low strength.	Fair: slope.
Ar-------------------- Arrington	Fair: low strength.	Good.
BbD:*		
Barfield-------------	Poor: low strength, shrink-swell.	Poor: thin layer.
Rock outcrop.		
BbE:*		
Barfield-------------	Poor: slope, low strength, shrink-swell.	Poor: slope, thin layer.
Rock outcrop.		
BcC------------------- Baxter	Poor: low strength.	Poor: small stones.
BcD------------------- Baxter	Poor: low strength.	Poor: slope, small stones.
Be-------------------- Beason	Fair: wetness, low strength.	Fair: too clayey, thin layer.
BoD------------------- Bodine	Fair: low strength, large stones.	Fair: slope, large stones.
BsE:*		
Bodine---------------	Poor: slope.	Poor: slope.
Sulphura-------------	Poor: slope.	Poor: small stones, slope.
BvB------------------- Bradyville	Poor: low strength.	Poor: too clayey, thin layer.
ByB------------------- Byler	Fair: low strength.	Good.
CaB------------------- Capshaw	Poor: low strength.	Fair: thin layer.
DeD------------------- Dellrose	Fair: slope, low strength.	Poor: small stones, slope.
DeE------------------- Dellrose	Poor: slope.	Poor: small stones, slope.

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Topsoil
DkB: Dickson	Fair: low strength.	Fair: area reclaim.
Eg: Egam	Poor: low strength.	Fair: too clayey.
GdC: Gladeville	Poor: thin layer.	Poor: thin layer, small stones.
HmC, HmD: Hampshire	Poor: low strength.	Poor: thin layer, too clayey.
HuB: Humphreys	Fair: low strength.	Poor: small stones.
Ld: Lindell	Fair: low strength.	Good.
Ln:*		
Lindell	Fair: low strength.	Good.
Urban land.		
LoB: Lomond	Poor: low strength.	Fair: thin layer.
MaB: Maury	Poor: low strength.	Good.
MaC: Maury	Poor: low strength.	Fair: slope.
McB:*		
Maury	Poor: low strength.	Good.
Urban land.		
MmC: Mimosa	Poor: low strength.	Poor: too clayey.
MmD, MoE3: Mimosa	Poor: low strength.	Poor: slope, too clayey.
MrD:*		
Mimosa	Poor: low strength.	Poor: too clayey.
Rock outcrop.		
MrE:*		
Mimosa	Poor: slope, low strength.	Poor: slope, too clayey.
Rock outcrop.		
MsD:*		
Mimosa	Poor: low strength.	Poor: slope, too clayey.
Urban land.		

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Topsoil
MvC Mountview	Fair: low strength.	Good.
Ne Newark	Poor: wetness.	Good.
Oc Ocana	Fair: low strength.	Poor: small stones.
Pt.* Pits		
RtC:* Rock outcrop.		
Talbott	Poor: low strength.	Poor: too clayey, thin layer.
Se Sequatchie	Fair: low strength.	Good.
SmC Stemley	Fair: low strength.	Poor: small stones.
StC Stiversville	Fair: low strength.	Fair: small stones, too clayey.
StD Stiversville	Fair: slope, low strength.	Poor: slope.
SvD:* Stiversville	Fair: low strength.	Fair: slope, small stones, too clayey.
Urban land.		
Ta Taft	Poor: wetness.	Poor: wetness.
TbC, TcC3 Talbott	Poor: low strength.	Poor: too clayey, thin layer.
TrC:* Talbott	Poor: low strength.	Poor: too clayey, thin layer.
Rock outcrop.		
TuC:* Talbott	Poor: low strength.	Poor: too clayey, thin layer.
Urban land.		
Wo Wolftever	Fair: shrink-swell, low strength.	Fair: too clayey.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated]

Map symbol and soil name	Limitations for--		Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Terraces and diversions	Grassed waterways
AmB Armour	Moderate: seepage.	Moderate: compressible.	Not needed	Favorable	Slope.
AmC, AmC3 Armour	Moderate: seepage.	Moderate: compressible.	Not needed	Slope	Slope.
Ar Arrington	Moderate: seepage.	Moderate: piping, compressible.	Not needed	Not needed	Favorable.
BbD,* BbE:*					
Barfield	Severe: depth to rock.	Severe: thin layer, compressible.	Not needed	Depth to rock, large stones, rooting depth.	Droughty, rooting depth, large stones.
Rock outcrop.					
BcC, BcD Baxter	Moderate: seepage.	Moderate: hard to pack.	Not needed	Slope, slow intake.	Slope.
Be Beason	Moderate: seepage.	Slight	Floods, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
BoD Bodine	Severe: seepage.	Moderate: seepage, large stones.	Not needed	Slope, small stones, large stones.	Slope, large stones, droughty.
BsE:*					
Bodine	Severe: seepage.	Moderate: seepage, large stones.	Not needed	Slope, small stones, large stones.	Slope, large stones, droughty.
Sulphura	Moderate: seepage.	Severe: thin layer.	Not needed	Slope, depth to rock.	Slope, droughty, depth to rock.
BvB Bradyville	Moderate: depth to rock.	Severe: compressible.	Not needed	Favorable	Favorable.
ByB Byler	Slight	Slight	Cemented pan	Cemented pan	Rooting depth.
CaB Capshaw	Moderate: depth to rock.	Severe: compressible.	Percs slowly	Favorable	Favorable.
DeD, DeE Dellrose	Severe: seepage.	Slight	Not needed	Slope	Slope.
DkB Dickson	Slight	Moderate: compressible.	Not needed	Favorable	Favorable.
Eg Egam	Moderate: seepage.	Moderate: compressible.	Floods, percs slowly.	Not needed	Favorable.
GdC Gladeville	Severe: depth to rock.	Severe: thin layer.	Not needed	Depth to rock	Droughty, rooting depth.
HmC Hampshire	Moderate: depth to rock, seepage.	Moderate: compressible.	Not needed	Slope	Favorable.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Terraces and diversions	Grassed waterways
HmD Hampshire	Moderate: depth to rock, seepage.	Moderate: compressible.	Not needed	Slope	Slope.
HuB Humphreys	Severe: seepage.	Slight	Not needed	Favorable	Favorable.
Ld Lindell	Moderate: seepage.	Slight	Floods	Not needed	Favorable.
Ln:*					
Lindell	Moderate: seepage.	Slight	Floods	Not needed	Favorable.
Urban land.					
LoB Lomond	Moderate: seepage.	Moderate: erodes easily.	Not needed	Erodes easily	Erodes easily.
MaB, MaC Maury	Severe: seepage.	Severe: hard to pack.	Not needed	Slope	Slope.
McB:*					
Maury	Severe: seepage.	Severe: hard to pack.	Not needed	Slope	Slope.
Urban land.					
MmC Mimosa	Moderate: depth to rock.	Moderate: thin layer, compressible.	Not needed	Favorable	Favorable.
MmD, MoE3 Mimosa	Moderate: depth to rock.	Moderate: thin layer, compressible.	Not needed	Slope	Slope.
MrD,* MrE:*					
Mimosa	Moderate: depth to rock.	Moderate: thin layer, compressible.	Not needed	Slope	Slope.
Rock outcrop.					
MsD:*					
Mimosa	Moderate: depth to rock.	Moderate: thin layer, compressible.	Not needed	Slope	Slope.
Urban land.					
MvC Mountview	Moderate: seepage.	Slight	Not needed	Slope	Slope.
Ne Newark	Moderate: seepage.	Severe: wetness.	Floods, frost action.	Not needed	Wetness, erodes easily.
Oc Ocana	Severe: floods, seepage.	Slight	Not needed	Not needed	Favorable.
Pt.* Pits					
RtC:* Rock outcrop.					

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Terraces and diversions	Grassed waterways
RtC:*					
Talbott	Severe: depth to rock.	Severe: compressible.	Not needed	Depth to rock, percs slowly, slope.	Slope, rooting depth, erodes easily.
Se Sequatchie	Moderate: seepage.	Moderate: thin layer.	Not needed	Favorable	Favorable.
SmC Stemley	Moderate: seepage.	Moderate: piping.	Percs slowly	Percs slowly, rooting depth, slope.	Droughty, rooting depth.
StC Stiversville	Severe: seepage.	Slight	Not needed	Favorable	Favorable.
StD Stiversville	Severe: seepage.	Slight	Not needed	Slope	Slope.
SvD:*					
Stiversville	Severe: seepage.	Slight	Not needed	Slope	Slope.
Urban land.					
Ta Taft	Slight	Moderate: compressible, piping.	Percs slowly, poor outlets.	Not needed	Not needed.
TbC Talbott	Severe: depth to rock.	Severe: compressible.	Not needed	Depth to rock, percs slowly.	Slope, rooting depth, erodes easily.
TcC3 Talbott	Severe: depth to rock.	Severe: compressible.	Not needed	Depth to rock, percs slowly, slope.	Slope, rooting depth, erodes easily.
TrC:*					
Talbott	Severe: depth to rock.	Severe: compressible.	Not needed	Depth to rock, percs slowly, slope.	Slope, rooting depth, erodes easily.
Rock outcrop.					
TuC:*					
Talbott	Severe: depth to rock.	Severe: compressible.	Not needed	Depth to rock, percs slowly.	Slope, rooting depth, erodes easily.
Urban land.					
Wo Wolftever	Moderate: seepage.	Moderate: compressible.	Floods, wetness, percs slowly.	Wetness	Slope, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
AmB, AmC, AmC3----- Armour	0-16	Silt loam-------	CL-ML, CL, ML	A-4	0	90-100	80-100	75-95	70-90	25-35	5-10
	16-41	Silty clay loam	CL	A-6	0	90-100	80-100	75-95	70-95	30-40	11-18
	41-66	Silty clay loam, silty clay, clay.	ML, MH, GM, GC	A-6, A-7	0-3	60-100	50-95	45-90	40-85	35-53	11-23
Ar----------------- Arrington	0-35	Silt loam-------	CL, ML, CL-ML	A-4, A-6	0	100	90-100	85-95	75-95	25-36	3-12
	35-65	Silt loam, silty clay loam, clay.	CL, ML	A-4, A-6, A-7	0	95-100	85-100	75-95	65-95	28-48	8-23
BbD,* BbE:*											
Barfield----------	0-8	Silty clay loam	CL, CH, MH	A-6, A-7	0-10	90-100	85-95	80-90	75-85	35-65	12-35
	8-15	Silty clay, clay, silty clay loam.	CH, MH, CL	A-7, A-6	0-15	70-100	65-90	60-85	55-80	35-70	14-40
	15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
BcC, BcD----------- Baxter	0-8	Cherty silt loam	ML, GM, CL-ML, GM-GC	A-4	0-10	60-90	55-80	45-70	45-70	25-35	4-10
	8-14	Cherty silty clay loam, cherty silt loam.	CL, SM-SC, GC, CL-ML	A-4, A-6	0-10	60-90	55-80	55-80	45-80	25-40	5-20
	14-72	Cherty silty clay, cherty clay.	CH, CL, GC, SC	A-7	0-10	55-90	45-85	45-85	45-80	40-60	20-35
Be----------------- Beason	0-18	Silt loam-------	ML, CL, CL-ML	A-4	0	100	95-100	90-100	75-90	20-30	3-10
	18-65	Silty clay loam, silty clay, clay.	CL	A-6, A-7	0	100	95-100	90-95	80-95	30-41	11-20
BoD---------------- Bodine	0-5	Cherty silt loam	ML, CL-ML, GM, SM	A-4, A-2, A-1-b	5-25	30-90	20-75	20-67	20-62	<30	NP-7
	5-20	Cherty silt loam, cherty silty clay loam, stony silt loam.	GM-GC, GC, SC, SM-SC	A-1, A-2, A-4, A-6	20-45	30-70	20-65	20-55	15-45	20-38	3-15
	20-65	Cherty silty clay loam, cherty clay loam, very cherty silty clay loam.	GC, GM, SC, SM	A-2	20-55	20-70	15-65	15-45	12-35	26-42	8-16

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
BsE:*											
Bodine	0-5	Cherty silt loam	ML, CL-ML, GM, SM	A-4, A-2, A-1-B	5-25	30-90	20-75	20-67	20-62	<30	NP-7
	5-20	Cherty silt loam, cherty silty clay loam, stony silt loam.	GM-GC, GC, SC, SM-SC	A-1, A-2, A-4, A-6	20-45	30-70	20-65	20-55	15-45	20-38	3-15
	20-65	Cherty silty clay loam, cherty clay loam, very cherty silty clay loam.	GC, GM, SC, SM	A-2	20-55	20-70	15-65	15-45	12-35	26-42	8-16
Sulphura	0-5	Shaly silt loam	ML, CL-ML	A-4	0-8	70-90	65-85	60-80	55-75	<22	3-7
	5-26	Shaly silt loam, very shaly silt loam, shaly loam.	GC, GM-GC	A-2, A-4, A-6	10-20	45-60	40-55	35-50	30-45	23-32	6-12
BvB Bradyville	0-7	Silt loam	ML, CL, CL-ML	A-4, A-6	0-5	80-100	75-100	70-95	65-90	15-35	3-15
	7-18	Silty clay loam, silty clay, clay.	CL, MH, CH	A-7	0-5	80-100	75-100	70-90	65-85	41-55	18-28
	18-55	Silty clay, clay, silty clay loam.	CH, MH	A-7	0-5	80-100	75-100	65-90	60-85	52-70	26-40
	55	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
ByB Byler	0-9	Silt loam	CL-ML, CL	A-4	0	100	90-100	85-95	75-90	20-30	5-10
	9-24	Silt loam, silty clay loam.	CL-ML, CL, ML	A-4, A-6	0	100	90-100	85-100	85-95	20-40	3-15
	24-44	Silty clay loam, silt loam.	CL, ML	A-6, A-4, A-7	0	100	90-100	85-100	80-95	30-45	8-20
	44-65	Clay, silty clay	MH, ML	A-6, A-7	0-5	95-100	90-100	80-95	75-90	40-60	12-25
CaB Capshaw	0-5	Silt loam	ML, CL, CL-ML	A-4	0	90-100	85-100	80-95	75-85	16-30	3-10
	5-10	Silty clay loam, silty clay, silt loam.	ML, CL	A-6, A-7	0	90-100	85-100	80-95	75-85	30-45	11-20
	10-49	Clay, silty clay, silty clay loam.	CL, CH, MH	A-7	0	90-100	85-100	80-95	75-90	41-60	20-33
DeD, DeE Dellrose	0-6	Cherty silt loam	CL-ML, SC, CL, GC	A-4, A-6	0-10	55-90	55-85	45-75	40-70	20-35	5-15
	6-61	Cherty silty clay loam, cherty silt loam.	ML, CL, GC, SC	A-4, A-6, A-7	0-15	60-90	55-90	50-75	40-70	30-45	8-18
	61-74	Clay	MH, CH	A-7	0-10	80-100	80-100	75-90	70-85	50-70	20-35
DkB Dickson	0-8	Silt loam	CL-ML, ML	A-4	0	100	95-100	90-100	75-95	20-28	2-7
	8-25	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	95-100	95-100	85-95	25-38	5-17
	25-44	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7	0	95-100	90-100	85-100	80-95	25-42	7-20
	44-65	Clay, cherty silty clay loam, cherty clay.	MH, ML, GC, CL	A-6, A-7	0-20	70-100	60-100	55-100	45-95	35-65	12-30

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Eg Egam	0-22	Silty clay loam	CL, ML, CL-ML	A-6, A-7, A-4	0	95-100	95-100	85-100	75-95	21-45	4-20
	22-56	Silty clay, silty clay loam, clay.	CL, MH, CH	A-7, A-6	0	95-100	95-100	90-100	85-95	38-60	15-30
	56-75	Silty clay loam, clay.	CL, ML, MH, CH	A-4, A-6, A-7	0	95-100	95-100	75-100	55-95	25-60	8-30
GdC Gladeville	0-10	Flaggy silty clay loam.	GC, CL, CH	A-2, A-6, A-7	5-20	40-65	30-55	25-55	20-55	38-55	20-34
	10	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
HmC, HmD Hampshire	0-5	Silt loam	CL-ML, CL, ML	A-4, A-6	0	95-100	95-100	90-100	80-90	20-40	3-20
	5-45	Clay, silty clay loam, clay loam.	CL, CH, MH	A-7	0-10	80-100	75-100	65-95	55-85	45-70	21-38
	45-53	Shaly loam, shaly clay loam, shaly silty clay loam.	CL, ML, GC, SC	A-6, A-7, A-2	0-65	55-75	50-75	40-70	30-60	30-48	11-25
HuB Humphreys	0-8	Cherty silt loam	ML, CL-ML, CL, GM-GC	A-4	0-5	60-75	55-75	50-70	36-55	15-28	3-10
	8-55	Cherty silty clay loam, cherty clay loam.	CL, GC, SC	A-6	0-5	55-75	50-75	45-70	40-60	28-40	10-16
	55-62	Cherty silty clay loam, cherty clay loam, very cherty clay loam.	CL, GC, SC	A-4, A-6, A-2	0-10	45-75	40-75	30-65	20-55	25-35	8-15
Ld Lindell	0-11	Silt loam	ML, CL, CL-ML	A-4	0	90-100	75-100	65-90	55-80	18-30	3-10
	11-62	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6	0-2	90-100	75-95	65-90	55-80	23-39	6-18
Ln:* Lindell	0-11	Silt loam	ML, CL, CL-ML	A-4	0	90-100	75-100	65-90	55-80	18-30	3-10
	11-62	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6	0-2	90-100	75-95	65-90	55-80	23-39	6-18
Urban land.											
LoB Lomond	0-9	Silt loam	ML, CL, CL-ML	A-4	0	100	95-100	80-95	70-90	20-28	3-10
	9-16	Silty clay loam, silt loam.	CL-ML, CL	A-4, A-6	0	100	95-100	85-100	75-95	20-35	5-16
	16-46	Silty clay loam, clay, silty clay.	CL	A-6, A-7	0	100	90-100	85-95	80-95	35-49	15-26
	46-65	Clay, silty clay	MH	A-7	0	100	85-100	80-95	70-90	51-65	21-32

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
MaB, MaC----------- Maury	0-7	Silt loam-------	CL, CL-ML, ML	A-4	0	100	95-100	90-100	80-100	25-35	4-10
	7-24	Silty clay loam	ML, CL	A-6, A-7, A-4	0	100	95-100	90-100	80-100	30-45	8-25
	24-48	Silty clay loam, silty clay, clay.	CL, MH, CH	A-7, A-6	0	95-100	90-100	85-100	80-100	35-60	15-35
	48-65	Silty clay, clay, silty clay loam.	MH, CH, CL	A-7, A-6	0	95-100	90-100	85-100	75-100	35-70	20-40
McB:*											
Maury------------	0-7	Silt loam-------	CL, CL-ML, ML	A-4	0	100	95-100	90-100	80-100	25-35	4-10
	7-24	Silty clay loam	ML, CL	A-6, A-7, A-4	0	100	95-100	90-100	80-100	30-45	8-25
	24-48	Silty clay loam, silty clay, clay.	CL, MH, CH	A-7, A-6	0	95-100	90-100	85-100	80-100	35-60	15-35
	48-65	Silty clay, clay, silty clay loam.	MH, CH, CL	A-7, A-6	0	95-100	90-100	85-100	75-100	35-70	20-40
Urban land.											
MmC, MmD----------- Mimosa	0-7	Silt loam-------	CL-ML, CL	A-4, A-6	0	80-100	75-100	65-95	60-90	25-40	7-18
	7-14	Silty clay loam, silty clay, clay.	ML, CL, MH, CH	A-7	0	95-100	90-100	85-95	80-90	45-60	18-27
	14-55	Clay, silty clay	CH, MH	A-7	0	95-100	90-100	85-95	80-95	51-65	25-35
	55	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
MoE3-------------- Mimosa	0-6	Silty clay------	CH, MH	A-7	0	95-100	90-100	85-95	75-90	51-65	25-35
	6-55	Clay, silty clay	CH, MH	A-7	0	95-100	90-100	85-95	80-95	51-65	25-35
	55	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
MrD,* MrE:*											
Mimosa-----------	0-7	Silt loam-------	CL-ML, CL	A-4, A-6	0	80-100	75-100	65-95	60-90	25-40	7-18
	7-14	Silty clay loam, silty clay, clay.	ML, CL, MH, CH	A-7	0	95-100	90-100	85-95	80-90	45-60	18-27
	14-55	Clay, silty clay	CH, MH	A-7	0	95-100	90-100	85-95	80-95	51-65	25-35
	55	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
MsD:*											
Mimosa-----------	0-7	Silt loam-------	CL-ML, CL	A-4, A-6	0	80-100	75-100	65-95	60-90	25-40	7-18
	7-14	Silty clay loam, silty clay, clay.	ML, CL, MH, CH	A-7	0	95-100	90-100	85-95	80-90	45-60	18-27
	14-55	Clay, silty clay	CH, MH	A-7	0	95-100	90-100	85-95	80-95	51-65	25-35
	55	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Urban land.											

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
MvC Mountview	0-7	Silt loam	ML, CL-ML	A-4	0	100	95-100	95-100	85-95	20-30	2-7
	7-39	Silt loam, silty clay loam.	CL	A-6, A-7	0	95-100	95-100	90-100	85-95	30-43	10-20
	39-73	Clay, cherty clay, cherty silty clay loam.	CL, ML, MH, CH	A-6, A-7	0-20	75-100	65-100	60-95	50-95	35-65	11-32
Ne Newark	0-6	Silt loam	ML, CL, CL-ML	A-4	0	95-100	90-100	80-100	55-95	<32	NP-10
	6-43	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4, A-6, A-7	0	95-100	90-100	85-100	70-95	22-42	4-20
	43-60	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4, A-6, A-7	0-3	75-100	70-100	65-100	55-95	22-42	4-20
Oc Ocana	0-8	Cherty silt loam	CL-ML, CL, SM, GM	A-4, A-6	0-8	65-80	60-75	50-70	36-65	20-35	4-15
	8-62	Cherty silt loam, cherty loam, cherty clay loam.	CL-ML, CL, SM, GM	A-4, A-6	0-8	60-80	55-75	45-65	36-55	20-38	5-18
Pt.* Pits											
RtC:* Rock outcrop.											
Talbott	0-5	Silt loam	ML, CL, CL-ML	A-4, A-6, A-7	0-5	95-100	90-100	85-95	75-95	25-45	5-18
	5-32	Clay, silty clay	CL, MH, CH	A-7	0-10	95-100	90-100	85-95	80-95	41-80	20-45
	32	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Se Sequatchie	0-7	Fine sandy loam	ML, CL-ML, CL, SM	A-2, A-4	0-10	85-100	75-100	65-95	30-70	15-27	2-10
	7-32	Clay loam, loam, silt loam.	CL-ML, CL	A-4, A-6	0-10	85-100	75-100	65-95	55-85	20-32	5-15
	32-65	Sandy loam, loam, fine sandy loam.	ML, CL-ML, CL, SM	A-2, A-4	0-15	85-100	75-100	55-85	30-65	15-25	2-10
SmC Stemley	0-6	Cherty silt loam	ML, SM, CL-ML, GM	A-4, A-2	0-5	55-80	50-75	40-70	20-55	<30	NP-7
	6-20	Cherty loam, cherty clay loam, cherty silty clay loam.	SC, CL, GC	A-6, A-2	0-5	65-85	50-75	45-75	30-55	25-35	12-20
	20-46	Cherty loam, cherty silt loam, cherty silty clay loam.	GM-GC, GM, GC	A-2, A-1	5-10	20-60	15-50	10-40	5-25	20-30	4-10
	46-65	Cherty loam, cherty silt loam, cherty clay loam.	CL-ML, GM-GC, GM	A-1, A-2	0-5	35-80	30-75	25-70	20-55	20-30	4-10

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
StC, StD----------- Stiversville	0-8	Loam-------------	ML, CL, CL-ML	A-4	0-2	80-100	75-100	65-90	55-80	15-30	3-10
	8-53	Clay loam, loam	CL, CL-ML, ML	A-4, A-6	0-5	80-100	75-100	70-95	51-85	18-35	4-15
	53-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---
	60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
SvD:* Stiversville------	0-8	Loam-------------	ML, CL, CL-ML	A-4	0-2	80-100	75-100	65-90	55-80	15-30	3-10
	8-53	Clay loam, loam	CL, CL-ML, ML	A-4, A-6	0-5	80-100	75-100	70-95	51-85	18-35	4-15
	53-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---
	60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Urban land.											
Ta----------------- Taft	0-7	Silt loam-------	CL-ML, ML	A-4	0	100	95-100	90-100	75-95	18-30	2-7
	7-22	Silt loam, silty clay.	CL-ML, CL	A-4, A-6	0	100	95-100	95-100	85-95	23-38	5-16
	22-61	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7	0	95-100	90-100	85-100	80-95	23-42	5-20
TbC---------------- Talbott	0-5	Silt loam-------	ML, CL, CL-ML	A-4, A-6, A-7	0-5	95-100	90-100	85-95	75-95	25-45	5-18
	5-32	Clay, silty clay	CL, MH, CH	A-7	0-10	95-100	90-100	85-95	80-95	41-80	20-45
	32	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
TcC3--------------- Talbott	0-6	Clay-------------	ML, CL, CL-ML	A-4, A-6, A-7	0-5	95-100	90-100	85-95	75-95	25-45	5-18
	6-32	Clay, silty clay	CL, MH, CH	A-7	0-10	95-100	90-100	85-95	80-95	41-80	20-45
	32	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
TrC:* Talbott-----------	0-5	Silt loam-------	ML, CL, CL-ML	A-4, A-6, A-7	0-5	95-100	90-100	85-95	75-95	25-45	5-18
	5-32	Clay, silty clay	CL, MH, CH	A-7	0-10	95-100	90-100	85-95	80-95	41-80	20-45
	32	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
TuC:* Talbott-----------	0-5	Silt loam-------	ML, CL, CL-ML	A-4, A-6, A-7	0-5	95-100	90-100	85-95	75-95	25-45	5-18
	5-32	Clay, silty clay	CL, MH, CH	A-7	0-10	95-100	90-100	85-95	80-95	41-80	20-45
	32	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Urban land.											

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Wo------------------ Wolftever	0-6	Silt loam-------	CL-ML, CL, ML	A-4, A-6	0	100	95-100	90-100	80-95	25-35	3-12
	6-24	Silty clay, silty clay loam, silt loam.	ML, CL	A-4, A-6	0	100	95-100	90-100	80-95	30-40	7-15
	24-55	Silty clay, silty clay loam, clay.	ML, MH	A-6, A-7	0	100	95-100	90-100	75-95	40-55	11-20
	55-65	Loam, clay loam, silty clay loam.	CL-ML, CL	A-6, A-7	0	100	95-100	90-100	51-90	25-45	5-20

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors	
						K	T
	In	In/hr	In/in	pH			
AmB, AmC, AmC3---	0-16	0.6-2.0	0.18-0.22	5.1-6.0	Low------------	0.43	5
Armour	16-41	0.6-2.0	0.17-0.20	5.1-6.0	Low------------	0.37	
	41-66	0.6-2.0	0.10-0.18	5.1-6.0	Moderate-------	0.37	
Ar---------------	0-35	0.6-2.0	0.19-0.22	6.1-7.8	Low------------	0.37	5
Arrington	35-65	0.6-2.0	0.17-0.22	6.1-7.8	Low------------	0.32	
BbD,* BbE:*							
Barfield--------	0-8	0.2-0.6	0.10-0.15	6.1-7.8	Moderate-------	0.17	1
	8-15	0.2-0.6	0.09-0.14	6.1-7.8	High-----------	0.17	
	15	---	---	---	---------------	----	
Rock outcrop.							
BcC, BcD---------	0-8	0.6-2.0	0.14-0.18	4.5-6.5	Low------------	0.32	4
Baxter	8-14	0.6-2.0	0.14-0.18	4.5-6.5	Moderate-------	0.24	
	14-72	0.6-2.0	0.10-0.14	4.5-5.5	Moderate-------	0.24	
Be---------------	0-18	0.6-2.0	0.17-0.20	4.5-5.5	Low------------	0.32	5
Beason	18-65	0.2-0.6	0.14-0.18	4.5-5.5	Low------------	0.32	
BoD--------------	0-5	2.0-6.0	0.07-0.12	3.6-5.5	Low------------	0.28	5
Bodine	5-20	2.0-6.0	0.05-0.10	3.6-5.5	Low------------	0.28	
	20-65	2.0-6.0	0.05-0.10	3.6-5.5	Low------------	0.28	
BsE:*							
Bodine----------	0-5	2.0-6.0	0.07-0.12	3.6-5.5	Low------------	0.28	5
	5-20	2.0-6.0	0.05-0.10	3.6-5.5	Low------------	0.28	
	20-65	2.0-6.0	0.05-0.10	3.6-5.5	Low------------	0.28	
Sulphura--------	0-5	0.6-2.0	0.12-0.17	5.1-6.0	Low------------	0.20	2
	5-26	0.6-2.0	0.09-0.14	5.1-6.5	Low------------	0.20	
BvB--------------	0-7	0.6-2.0	0.15-0.20	5.1-6.0	Low------------	0.43	3
Bradyville	7-18	0.6-2.0	0.12-0.18	5.1-6.0	Moderate-------	0.28	
	18-55	0.2-2.0	0.10-0.16	5.1-7.8	Moderate-------	0.17	
	55	---	---	---	---------------	----	
ByB--------------	0-9	0.6-2.0	0.18-0.22	5.1-6.0	Low------------	0.43	3
Byler	9-24	0.6-2.0	0.17-0.20	5.1-6.0	Low------------	0.43	
	24-44	0.06-0.2	0.04-0.08	5.1-6.0	Low------------	0.43	
	44-65	0.2-0.6	0.04-0.08	5.1-6.0	Moderate-------	0.24	
CaB--------------	0-5	0.6-2.0	0.18-0.22	5.1-6.0	Low------------	0.37	3
Capshaw	5-10	0.6-2.0	0.16-0.20	5.1-6.0	Low------------	0.37	
	10-49	0.06-0.2	0.12-0.18	5.1-6.0	Moderate-------	0.24	
DeD, DeE---------	0-6	2.0-6.0	0.10-0.15	4.5-6.0	Low------------	0.17	5
Dellrose	6-61	2.0-6.0	0.09-0.14	4.5-6.0	Low------------	0.24	
	61-74	0.6-2.0	0.08-0.12	4.5-6.0	Moderate-------	0.24	
DkB--------------	0-8	0.6-2.0	0.18-0.22	4.5-5.5	Low------------	0.43	3
Dickson	8-25	0.6-2.0	0.18-0.20	4.5-5.5	Low------------	0.43	
	25-44	0.06-0.6	0.05-0.11	4.5-5.5	Low------------	0.43	
	44-65	0.2-0.6	0.02-0.04	4.5-5.5	Moderate-------	0.28	
Eg---------------	0-22	0.2-0.6	0.18-0.22	5.6-7.3	Moderate-------	0.32	4
Egam	22-56	0.2-0.6	0.14-0.20	5.6-7.3	Moderate-------	0.32	
	56-75	0.2-0.6	0.12-0.18	5.6-7.3	Moderate-------	0.37	
GdC--------------	0-10	0.6-2.0	0.05-0.11	6.6-8.4	Moderate-------	0.17	1
Gladeville	10	---	---	---	---------------	----	

See footnote at end of table.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Map symbol and soil name	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors	
						K	T
	In	In/hr	In/in	pH			
HmC, HmD--------- Hampshire	0-5	0.6-2.0	0.18-0.22	4.5-6.0	Low------------	0.37	3
	5-45	0.6-2.0	0.12-0.16	4.5-6.0	Moderate-------	0.28	
	45-53	0.6-2.0	0.07-0.12	4.5-6.5	Low------------	0.24	
HuB-------------- Humphreys	0-8	2.0-6.0	0.10-0.15	4.5-6.0	Low------------	0.20	5
	8-55	2.0-6.0	0.09-0.14	4.5-6.0	Low------------	0.24	
	55-62	2.0-6.0	0.06-0.12	4.5-6.0	Low------------	0.24	
Ld--------------- Lindell	0-11	0.6-2.0	0.16-0.20	5.6-7.3	Low------------	0.28	5
	11-62	0.6-2.0	0.14-0.17	5.6-7.3	Low------------	0.28	
Ln:*							
Lindell----------	0-11	0.6-2.0	0.16-0.20	5.6-7.3	Low------------	0.28	5
	11-62	0.6-2.0	0.14-0.17	5.6-7.3	Low------------	0.28	
Urban land.							
LoB-------------- Lomond	0-9	0.6-2.0	0.18-0.22	4.5-6.5	Low------------	0.43	5
	9-16	0.6-2.0	0.17-0.22	4.5-5.5	Low------------	0.37	
	16-46	0.6-2.0	0.12-0.17	4.5-5.5	Low------------	0.32	
	46-65	0.6-2.0	0.11-0.15	5.1-6.5	Moderate-------	0.28	
MaB, MaC--------- Maury	0-7	2.0-6.0	0.18-0.23	5.1-7.3	Low------------	0.32	4
	7-24	0.6-6.0	0.18-0.22	5.1-6.5	Low------------	0.28	
	24-48	0.6-6.0	0.15-0.20	5.1-6.5	Low------------	0.28	
	48-65	0.6-2.0	0.13-0.18	4.5-6.0	Low------------	0.28	
McB:*							
Maury-----------	0-7	2.0-6.0	0.18-0.23	5.1-7.3	Low------------	0.32	4
	7-24	0.6-6.0	0.18-0.22	5.1-6.5	Low------------	0.28	
	24-48	0.6-6.0	0.15-0.20	5.1-6.5	Low------------	0.28	
	48-65	0.6-2.0	0.13-0.18	4.5-6.0	Low------------	0.28	
Urban land.							
MmC, MmD--------- Mimosa	0-7	0.6-2.0	0.12-0.20	4.5-6.0	Low------------	0.20	3
	7-14	0.2-0.6	0.12-0.16	4.5-6.0	Moderate-------	0.20	
	14-55	0.2-0.6	0.12-0.16	4.5-6.0	Moderate-------	0.20	
	55	---	---	---	---------------	----	
MoE3------------- Mimosa	0-6	0.2-0.6	0.12-0.18	4.5-6.0	Moderate-------	0.20	3
	6-55	0.2-0.6	0.12-0.16	4.5-6.0	Moderate-------	0.20	
	55	---	---	---	---------------	----	
MrD,* MrE:*							
Mimosa----------	0-7	0.6-2.0	0.12-0.20	4.5-6.0	Low------------	0.20	3
	7-14	0.2-0.6	0.12-0.16	4.5-6.0	Moderate-------	0.20	
	14-55	0.2-0.6	0.12-0.16	4.5-6.0	Moderate-------	0.20	
	55	---	---	---	---------------	----	
Rock outcrop.							
MsD:*							
Mimosa----------	0-7	0.6-2.0	0.12-0.20	4.5-6.0	Low------------	0.20	3
	7-14	0.2-0.6	0.12-0.16	4.5-6.0	Moderate-------	0.20	
	14-55	0.2-0.6	0.12-0.16	4.5-6.0	Moderate-------	0.20	
	55	---	---	---	---------------	----	
Urban land.							
MvC-------------- Mountview	0-7	0.6-2.0	0.18-0.22	4.5-5.5	Low------------	0.43	5
	7-39	0.6-2.0	0.17-0.20	4.5-5.5	Low------------	0.43	
	39-73	0.6-2.0	0.10-0.15	4.5-5.5	Moderate-------	0.32	
Ne--------------- Newark	0-6	0.6-2.0	0.15-0.23	5.6-7.8	Low------------	0.43	5
	6-43	0.6-2.0	0.18-0.23	5.6-7.8	Low------------	0.43	
	43-60	0.6-2.0	0.15-0.22	5.6-7.8	Low------------	0.43	

See footnote at end of table.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Map symbol and soil name	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors	
						K	T
	In	In/hr	In/in	pH			
Oc	0-8	2.0-6.0	0.12-0.18	5.6-7.3	Low	0.28	5
Ocana	8-62	2.0-6.0	0.10-0.17	5.6-7.3	Low	0.28	
Pt.*							
Pits							
RtC:*							
Rock outcrop.							
Talbott	0-5	0.6-2.0	0.10-0.18	5.1-6.0	Moderate	0.37	2
	5-32	0.2-0.6	0.10-0.14	5.1-7.8	Moderate	0.24	
	32	---	---	---	---	----	
Se	0-7	0.6-2.0	0.12-0.18	4.5-5.5	Low	0.24	5
Sequatchie	7-32	0.6-2.0	0.15-0.20	4.5-5.5	Low	0.24	
	32-65	0.6-2.0	0.09-0.14	4.5-5.5	Low	0.24	
SmC	0-6	0.6-2.0	0.10-0.15	5.1-6.5	Low	0.24	3
Stemley	6-20	0.6-2.0	0.10-0.15	3.6-5.5	Low	0.28	
	20-46	0.06-0.2	0.01-0.02	3.6-5.5	Low	0.24	
	46-65	0.6-2.0	0.01-0.04	3.6-5.5	Low	0.28	
StC, StD	0-8	2.0-6.0	0.15-0.20	5.1-6.0	Low	0.24	4
Stiversville	8-53	2.0-6.0	0.14-0.18	5.1-6.0	Low	0.24	
	53-60	---	---	---	---	----	
	60	---	---	---	---	----	
SvD:*							
Stiversville	0-8	2.0-6.0	0.15-0.20	5.1-6.0	Low	0.24	4
	8-53	2.0-6.0	0.14-0.18	5.1-6.0	Low	0.24	
	53-60	---	---	---	---	----	
	60	---	---	---	---	----	
Urban land.							
Ta	0-7	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.43	3
Taft	7-22	0.6-2.0	0.18-0.20	4.5-5.5	Low	0.43	
	22-61	0.06-0.2	0.03-0.07	4.5-5.5	Low	0.43	
TbC	0-5	0.6-2.0	0.10-0.18	5.1-6.0	Moderate	0.37	2
Talbott	5-32	0.2-0.6	0.10-0.14	5.1-7.8	Moderate	0.24	
	32	---	---	---	---	----	
TcC3	0-6	0.6-2.0	0.10-0.18	5.1-6.0	Moderate	0.37	2
Talbott	6-32	0.2-0.6	0.10-0.14	5.1-7.8	Moderate	0.24	
	32	---	---	---	---	----	
TrC:*							
Talbott	0-5	0.6-2.0	0.10-0.18	5.1-6.0	Moderate	0.37	2
	5-32	0.2-0.6	0.10-0.14	5.1-7.8	Moderate	0.24	
	32	---	---	---	---	----	
Rock outcrop.							
TuC:*							
Talbott	0-5	0.6-2.0	0.10-0.18	5.1-6.0	Moderate	0.37	2
	5-32	0.2-0.6	0.10-0.14	5.1-7.8	Moderate	0.24	
	32	---	---	---	---	----	
Urban land.							
Wo	0-6	0.6-2.0	0.17-0.20	4.5-5.5	Low	0.37	3
Wolftever	6-24	0.2-0.6	0.15-0.18	4.5-5.5	Low	0.37	
	24-55	0.2-0.6	0.13-0.17	4.5-5.5	Moderate	0.37	
	55-65	0.2-0.6	0.13-0.17	4.5-5.5	Low	0.32	

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydrologic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					Ft			In			
AmB, AmC, AmC3---- Armour	B	None---------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
Ar----------------- Arrington	B	Common-------	Very brief	Dec-Mar	>6.0	---	---	>60	---	Low-------	Low.
BbD,* BbE:*											
Barfield----------	D	None---------	---	---	>6.0	---	---	8-20	Hard	High------	Low.
Rock outcrop.											
BcC, BcD----------- Baxter	B	None---------	---	---	>6.0	---	---	>60	---	High------	High.
Be----------------- Beason	C	Frequent-----	Very brief	Dec-Apr	1.0-2.0	Apparent	Dec-Apr	>60	---	High------	High.
BoD---------------- Bodine	B	None---------	---	---	>6.0	---	---	>60	---	Low-------	High.
BsE:*											
Bodine------------	B	None---------	---	---	>6.0	---	---	>60	---	Low-------	High.
Sulphura----------	D	None---------	---	---	>6.0	---	---	20-40	Hard	Low-------	Moderate.
BvB---------------- Bradyville	C	None---------	---	---	>6.0	---	---	40-60	Hard	High------	Moderate.
ByB---------------- Byler	C	None---------	---	---	2.0-3.0	Perched	Dec-Mar	>60	---	High------	Moderate.
CaB---------------- Capshaw	C	None---------	---	---	4.0-5.0	Apparent	Dec-Mar	48-84	Hard	High------	Moderate.
DeD, DeE----------- Dellrose	B	None---------	---	---	>6.0	---	---	>60	---	High------	Moderate.
DkB---------------- Dickson	C	None---------	---	---	2.0-3.0	Perched	Jan-Apr	>60	---	Moderate	Moderate.
Eg----------------- Egam	C	Occasional	Very brief	Dec-Mar	3.0-4.0	Apparent	Dec-Mar	>60	---	High------	Low.
GdC---------------- Gladeville	D	None---------	---	---	>6.0	---	---	3-12	Hard	High------	Low.
HmC, HmD----------- Hampshire	C	None---------	---	---	>6.0	---	---	40-60	Hard	High------	Moderate.
HuB---------------- Humphreys	B	None to rare	---	---	5.0-6.0	Apparent	Dec-Mar	>60	---	Moderate	Moderate.
Ld----------------- Lindell	C	Occasional	Very brief	Dec-Mar	2.0-3.0	Apparent	Dec-Mar	>60	---	Moderate	Low.
Ln:*											
Lindell-----------	C	Occasional	Very brief	Dec-Mar	2.0-3.0	Apparent	Dec-Mar	>60	---	Moderate	Low.
Urban land.											
LoB---------------- Lomond	B	None---------	---	---	>6.0	---	---	>60	---	High------	High.
MaB, MaC----------- Maury	B	None---------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.

See footnote at end of table.

TABLE 15.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					Ft			In			
McB:*											
Maury	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
Urban land.											
MmC, MmD, MoE3 Mimosa	C	None	---	---	>6.0	---	---	40-60	Hard	High	Moderate.
MrD,* MrE:*											
Mimosa	C	None	---	---	>6.0	---	---	40-60	Hard	High	Moderate.
Rock outcrop.											
MsD:*											
Mimosa	C	None	---	---	>6.0	---	---	40-60	Hard	High	Moderate.
Urban land.											
MvC Mountview	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
Ne Newark	C	Frequent	Brief	Jan-Apr	0.5-1.5	Apparent	Dec-May	>60	---	High	Low.
Oc Ocana	B	Rare	---	---	>6.0	---	---	>60	---	Low	Low.
Pt.* Pits											
RtC:*											
Rock outcrop.											
Talbott	C	None	---	---	>6.0	---	---	20-40	Hard	High	Moderate.
Se Sequatchie	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
SmC Stemley	C	None	---	---	2.5-4.5	Apparent	Nov-Mar	>60	---	Moderate	High.
StC, StD Stiversville	B	None	---	---	>6.0	---	---	40-60	Hard	Moderate	Moderate.
SvD:*											
Stiversville	B	None	---	---	>6.0	---	---	40-60	Hard	Moderate	Moderate.
Urban land.											
Ta Taft	C	None	---	---	1.0-2.0	Perched	Jan-Apr	>60	---	High	High.
TbC, TcC3 Talbott	C	None	---	---	>6.0	---	---	20-40	Hard	High	Moderate.
TrC:*											
Talbott	C	None	---	---	>6.0	---	---	20-40	Hard	High	Moderate.
Rock outcrop											
TuC:*											
Talbott	C	None	---	---	>6.0	---	---	20-40	Hard	High	Moderate.
Urban land.											
Wo Wolftever	C	Common	Very brief	Dec-Mar	3.0-4.0	Apparent	Dec-Mar	>60	---	High	High.

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* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Armour	Fine-silty, mixed, thermic Ultic Hapludalfs
Arrington	Fine-silty, mixed, thermic Cumulic Hapludolls
Barfield	Clayey, mixed, thermic Lithic Hapludolls
Baxter	Fine, mixed, mesic Typic Paleudalfs
Beason	Clayey, mixed, thermic Aquic Hapludults
Bodine	Loamy-skeletal, siliceous, thermic Typic Paleudults
Bradyville	Fine, mixed, thermic Typic Hapludalfs
Byler	Fine-silty, siliceous, thermic Typic Fragiudalfs
Capshaw	Fine, mixed, thermic Ultic Hapludalfs
Dellrose	Fine-loamy, mixed, thermic Humic Hapludults
Dickson	Fine-silty, siliceous, thermic Glossic Fragiudults
Egam	Fine, mixed, thermic Cumulic Hapludolls
Gladeville	Clayey-skeletal, mixed, thermic Lithic Rendolls
Hampshire	Fine, mixed, thermic Ultic Hapludalfs
Humphreys	Fine-loamy, siliceous, thermic Humic Hapludults
Lindell	Fine-loamy, mixed, thermic Fluvaquentic Eutrochrepts
Lomond	Fine-silty, siliceous, thermic Mollic Paleudalfs
Maury	Fine, mixed, mesic Typic Paleudalfs
Mimosa	Fine, mixed, thermic Typic Hapludalfs
Mountview	Fine-silty, siliceous, thermic Typic Paleudults
Newark	Fine-silty, mixed, nonacid, mesic Aeric Fluvaquents
Ocana	Fine-loamy, mixed, thermic Dystric Fluventic Eutrochrepts
Sequatchie	Fine-loamy, siliceous, thermic Humic Hapludults
Stemley	Coarse-loamy, siliceous, thermic Glossic Fragiudults
Stiversville	Fine-loamy, mixed, thermic Ultic Hapludalfs
Sulphura	Loamy-skeletal, siliceous, thermic Ruptic-Alfic Dystrochrepts
Taft	Fine-silty, siliceous, thermic Glossaquic Fragiudults
Talbott	Fine, mixed, thermic Typic Hapludalfs
Wolftever	Clayey, mixed, thermic Aquic Hapludults

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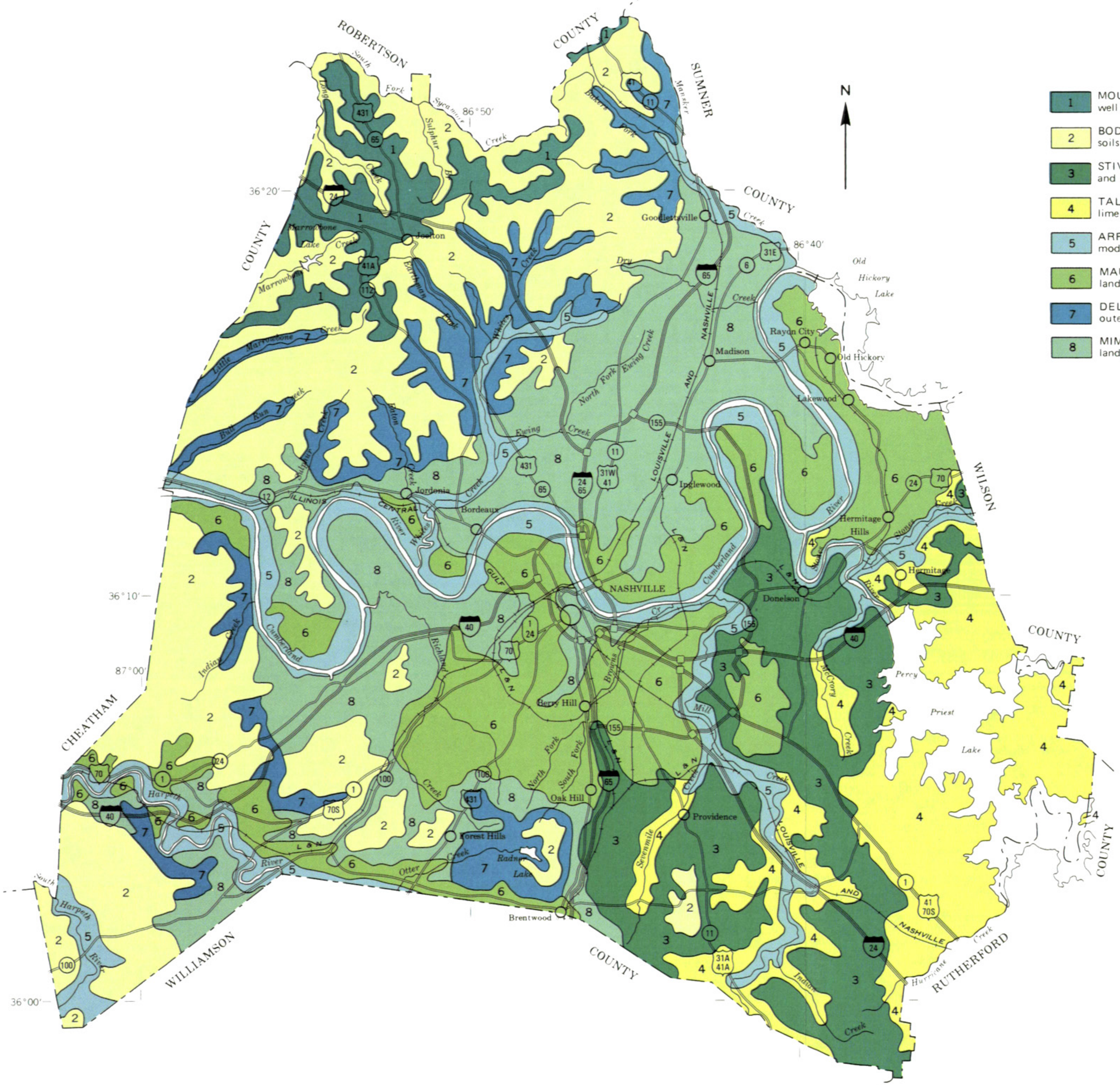


LEGEND

1	MOUNTVIEW-BAXTER-DICKSON: Undulating and rolling, well drained and moderately well drained soils; on the Highland Rim
2	BODINE-SULPHURA: Hilly to very steep, somewhat excessively drained cherty and shaly soils; on the escarpment of the Highland Rim
3	STIVERSVILLE-HAMPSHIRE-URBAN LAND: Undulating to hilly, well drained soils, and Urban land; in the outer part of the Nashville Basin
4	TALBOTT-ROCK OUTCROP: Undulating to hilly, well drained soils, and outcrops of limestone; in the inner part of the Nashville Basin
5	ARRINGTON-LINDELL-ARMOUR: Nearly level to gently sloping, well drained and moderately well drained soils; on flood plains and terraces throughout the Nashville Basin
6	MAURY-URBAN LAND-ARMOUR: Undulating to rolling, well drained soils, and Urban land; in the outer part of the Nashville Basin
7	DELLROSE-OCANA-HUMPHREYS: Nearly level to steep, well drained soils; in the outer part of the Nashville Basin
8	MIMOSA-URBAN LAND-ROCK OUTCROP: Undulating to hilly, well drained soils, Urban land, and outcrops of phosphatic limestone; in the outer part of the Nashville Basin

Compiled 1980

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
UNIVERSITY OF TENNESSEE AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP

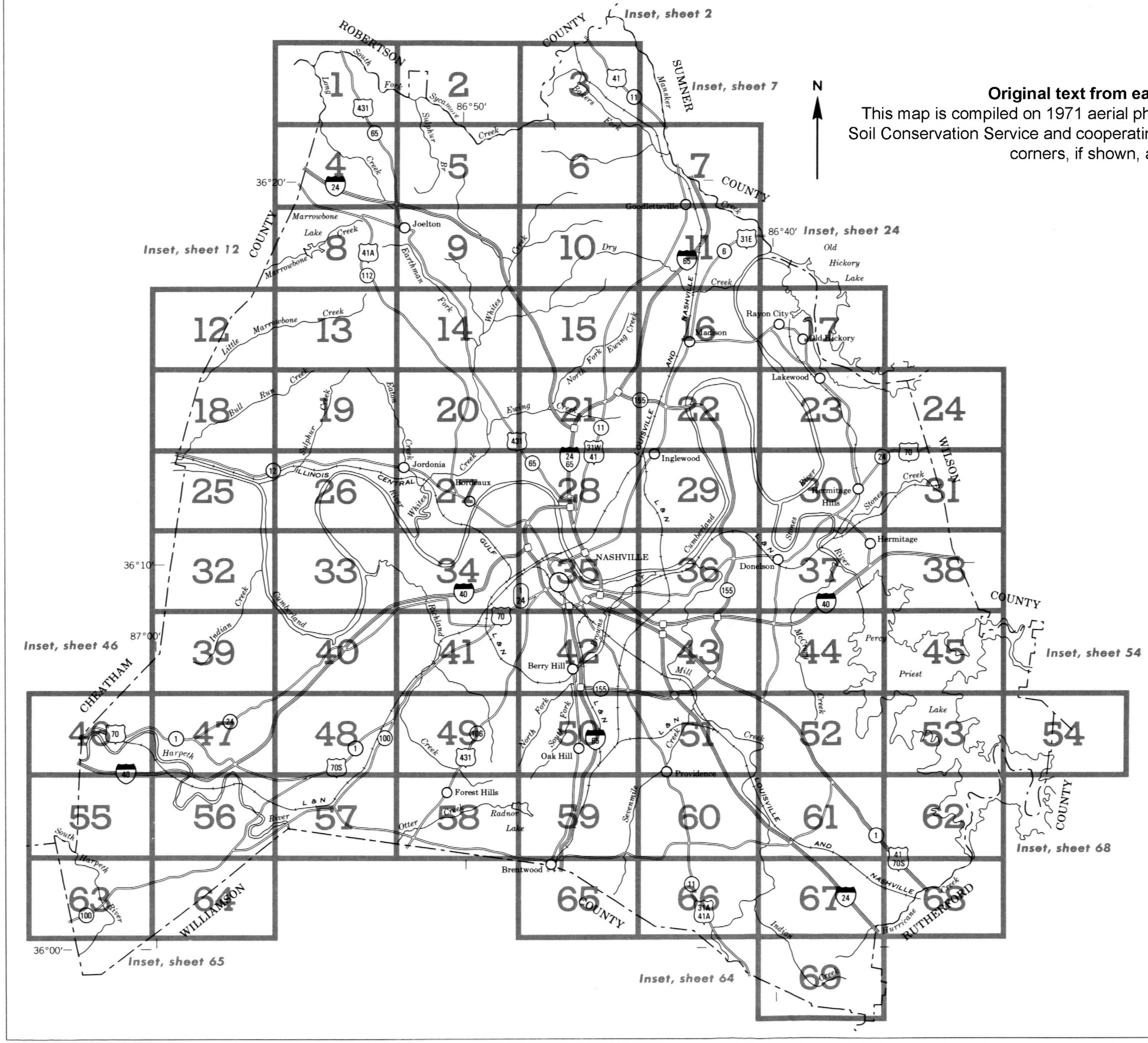
DAVIDSON COUNTY, TENNESSEE

Scale 1:190,080

1 0 1 2 3 Miles

1 0 3 6 Km

Original text from each individual map sheet read:
This map is compiled on 1971 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



INDEX TO MAP SHEETS
DAVIDSON COUNTY, TENNESSEE

Scale 1:190,080

1 0 1 2 3 Miles

1 0 3 6 Km

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label) — Hedley Airstrip

- Small airport, airfield, park, oilfield, cemetery, or flood pool — FLOOD POOL LINE

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS

Interstate	21
Federal	173
State	28
County, farm or ranch	1283

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small — water

PITS — w

- Gravel pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

Farmstead, house (omit in urban areas)	●
Church	
School	
Indian mound (label)	Indian Mound
Located object (label)	Tower
Tank (label)	Gas
Wells, oil or gas	
Windmill	
Kitchen midden	

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label) — CANAL
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

Perennial	water w
Intermittent	int i

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS — CnB WaC2

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

DEPRESSION OR SINK — ◊

SOIL SAMPLE SITE (normally not shown) — Ⓢ

MISCELLANEOUS

Blowout	
Cemetery <5 acres	
Clay spot	
Gravelly spot	
Gumbo, slick or scabby spot (sodic)	ø
Dumps and other similar non soil areas	
Prominent hill or peak	
Rock outcrop (includes sandstone and shale)	
Saline spot	+
Sandy spot	
Severely eroded spot	
Slide or slip (tips point upslope)	
Stony spot, very stony spot	

SOIL LEGEND

SYMBOL	NAME
AmB	Armour silt loam, 2 to 5 percent slopes
AmC	Armour silt loam, 5 to 12 percent slopes
AmC3	Armour silt loam, 5 to 15 percent slopes, severely eroded
Ar	Arrington silt loam
BbD	Barfield-Rock outcrop complex, 5 to 20 percent slopes
BbE	Barfield-Rock outcrop complex, 20 to 35 percent slopes
BcC	Baxter cherty silt loam, 3 to 12 percent slopes
BcD	Baxter cherty silt loam, 12 to 20 percent slopes
Be	Beason silt loam
BoD	Bodine cherty silt loam, 5 to 20 percent slopes
BsE	Bodine-Sulphura complex, 20 to 50 percent slopes
BvB	Bradyville silt loam, 2 to 5 percent slopes
ByB	Byler silt loam, 2 to 5 percent slopes
CaB	Capshaw silt loam, 2 to 5 percent slopes
DeD	Dellrose cherty silt loam, 12 to 20 percent slopes
DeE	Dellrose cherty silt loam, 20 to 40 percent slopes
DkB	Dickson silt loam, 1 to 4 percent slopes
Eg	Egam silty clay loam
GdC	Gladeville flaggy silty clay loam, 5 to 15 percent slopes
HmC	Hampshire silt loam, 5 to 12 percent slopes
HmD	Hampshire silt loam, 12 to 20 percent slopes
HuB	Humphreys cherty silt loam, 1 to 4 percent slopes
Ld	Lindell silt loam
Ln	Lindell-Urban land complex
LoB	Lomand silt loam, 2 to 5 percent slopes
MaB	Maury silt loam, 2 to 7 percent slopes
MaC	Maury silt loam, 7 to 20 percent slopes
McB	Maury-Urban land complex, 2 to 7 percent slopes
MmC	Mimosa silt loam, 2 to 12 percent slopes
MmD	Mimosa silt loam, 12 to 25 percent slopes
MoE3	Mimosa silty clay, 12 to 25 percent slopes, severely eroded
MrD	Mimosa-Rock outcrop complex, 5 to 20 percent slopes
MrE	Mimosa-Rock outcrop complex, 20 to 35 percent slopes
MsD	Mimosa-Urban land complex, 5 to 25 percent slopes
MvC	Mountview silt loam, 3 to 10 percent slopes
Ne	Newark silt loam
Oc	Ocana cherty silt loam
Pt	Pits
RtC	Rock outcrop-Talbott complex, 5 to 15 percent slopes
Se	Sequatchie fine sandy loam
SmC	Stemley cherty silt loam, 3 to 12 percent slopes
StC	Stiversville loam, 3 to 12 percent slopes
StD	Stiversville loam, 12 to 25 percent slopes
SvD	Stiversville-Urban land complex, 3 to 25 percent slopes
Ta	Taft silt loam
TbC	Talbott silt loam, 2 to 10 percent slopes
TcC3	Talbott clay, 5 to 15 percent slopes, severely eroded
TrC	Talbott-Rock outcrop complex, 5 to 15 percent slopes
TuC	Talbott-Urban land complex, 3 to 12 percent slopes
Wo	Wolftever silt loam

DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 1

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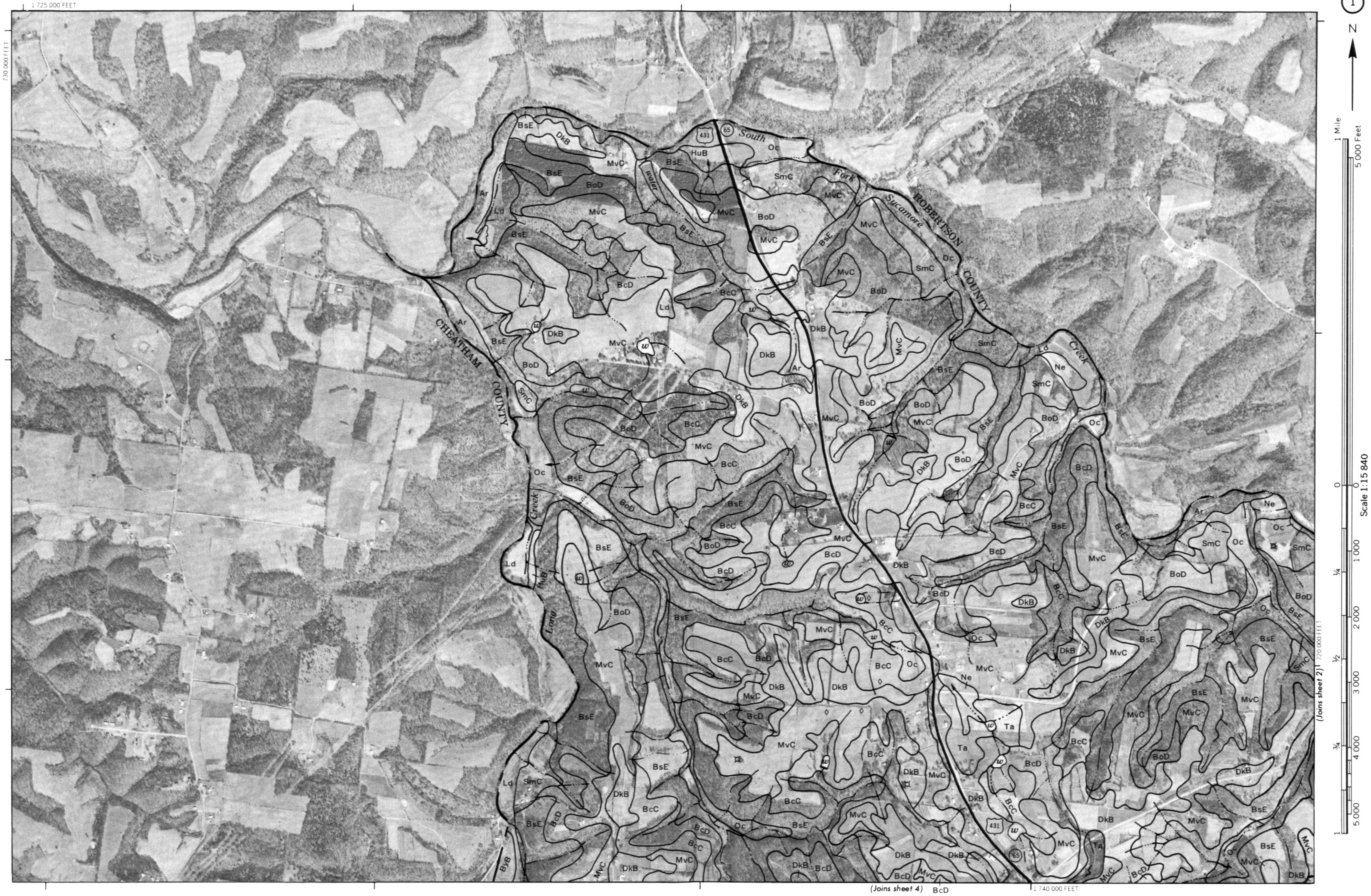

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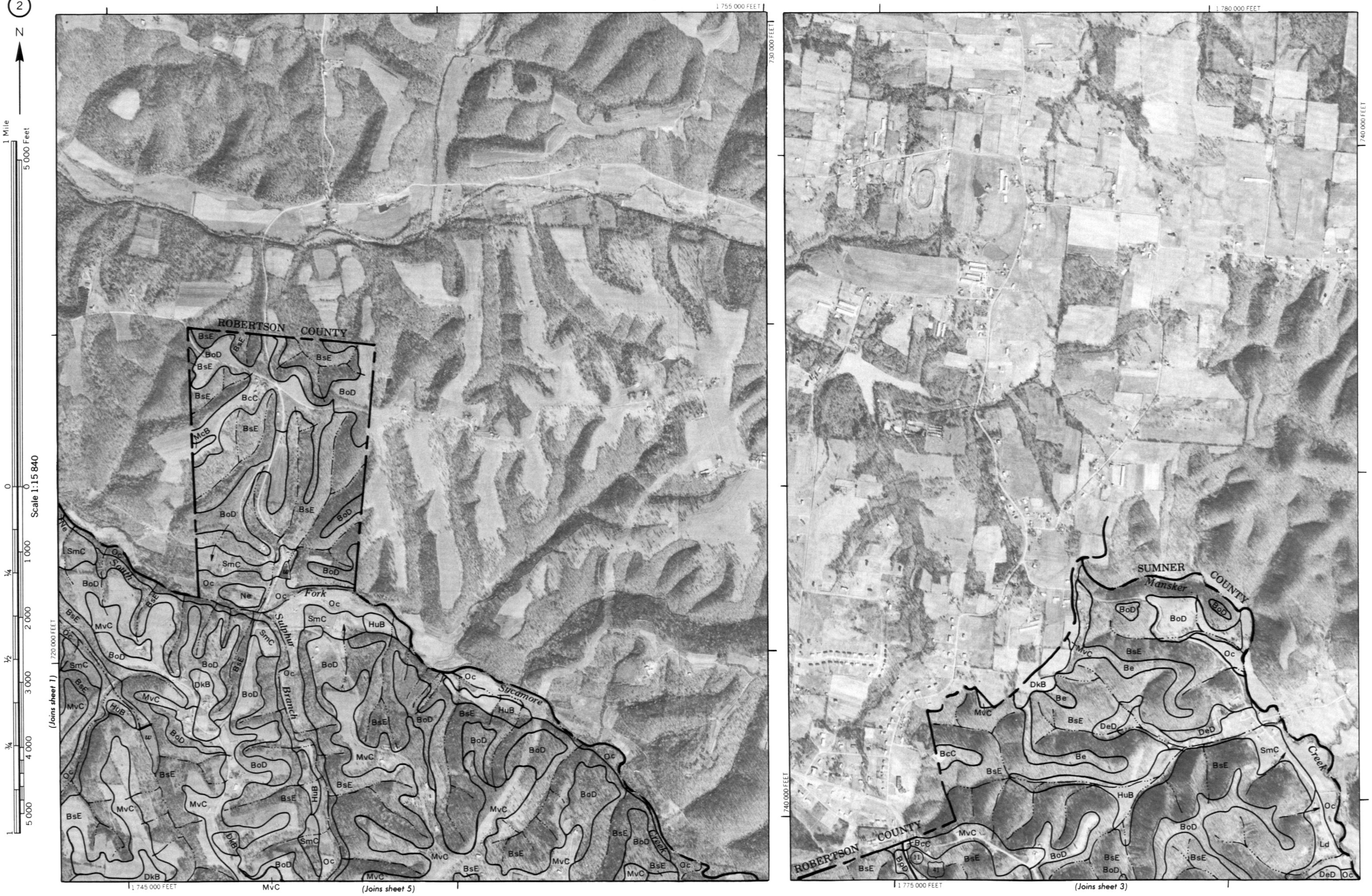

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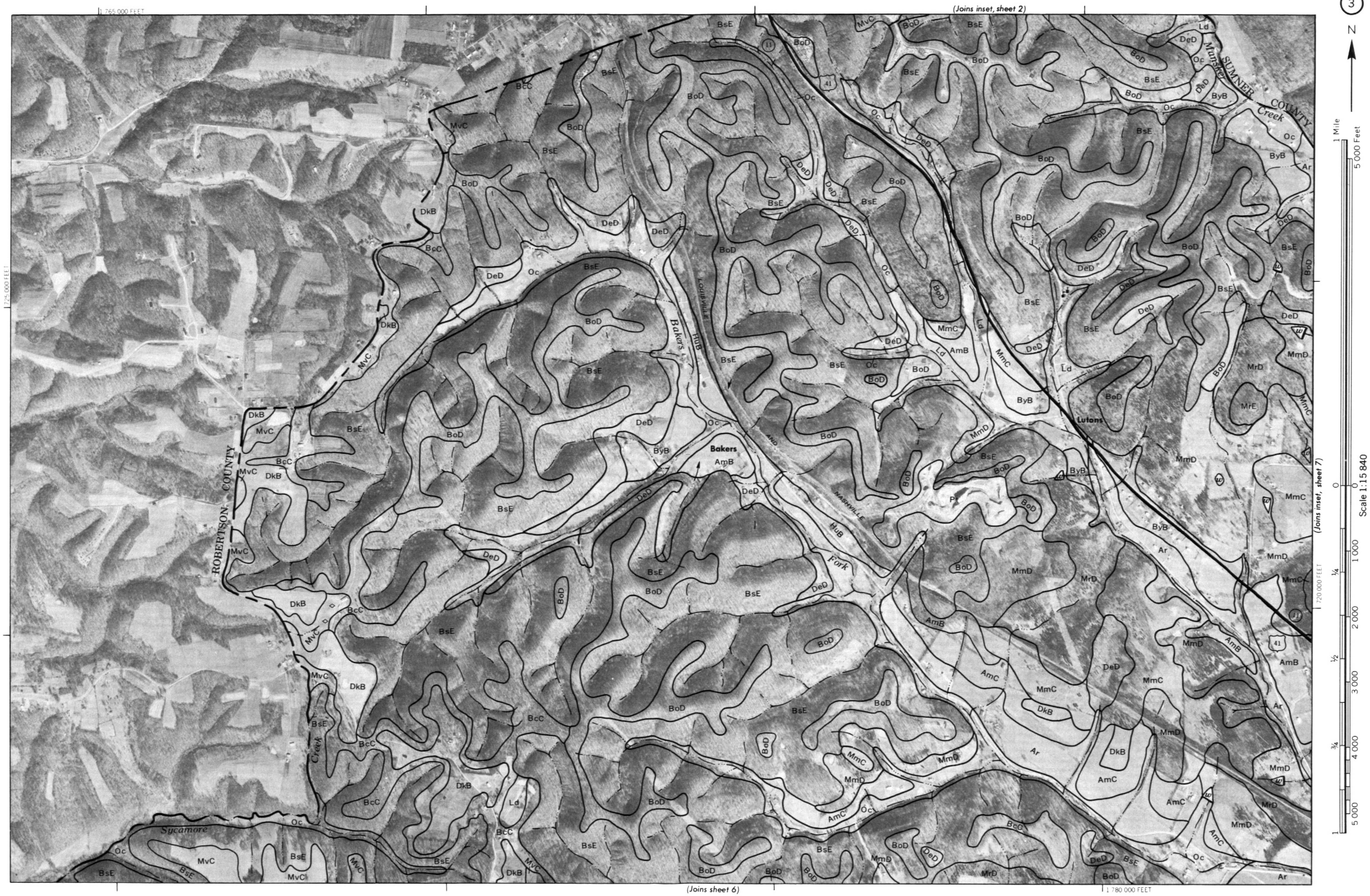

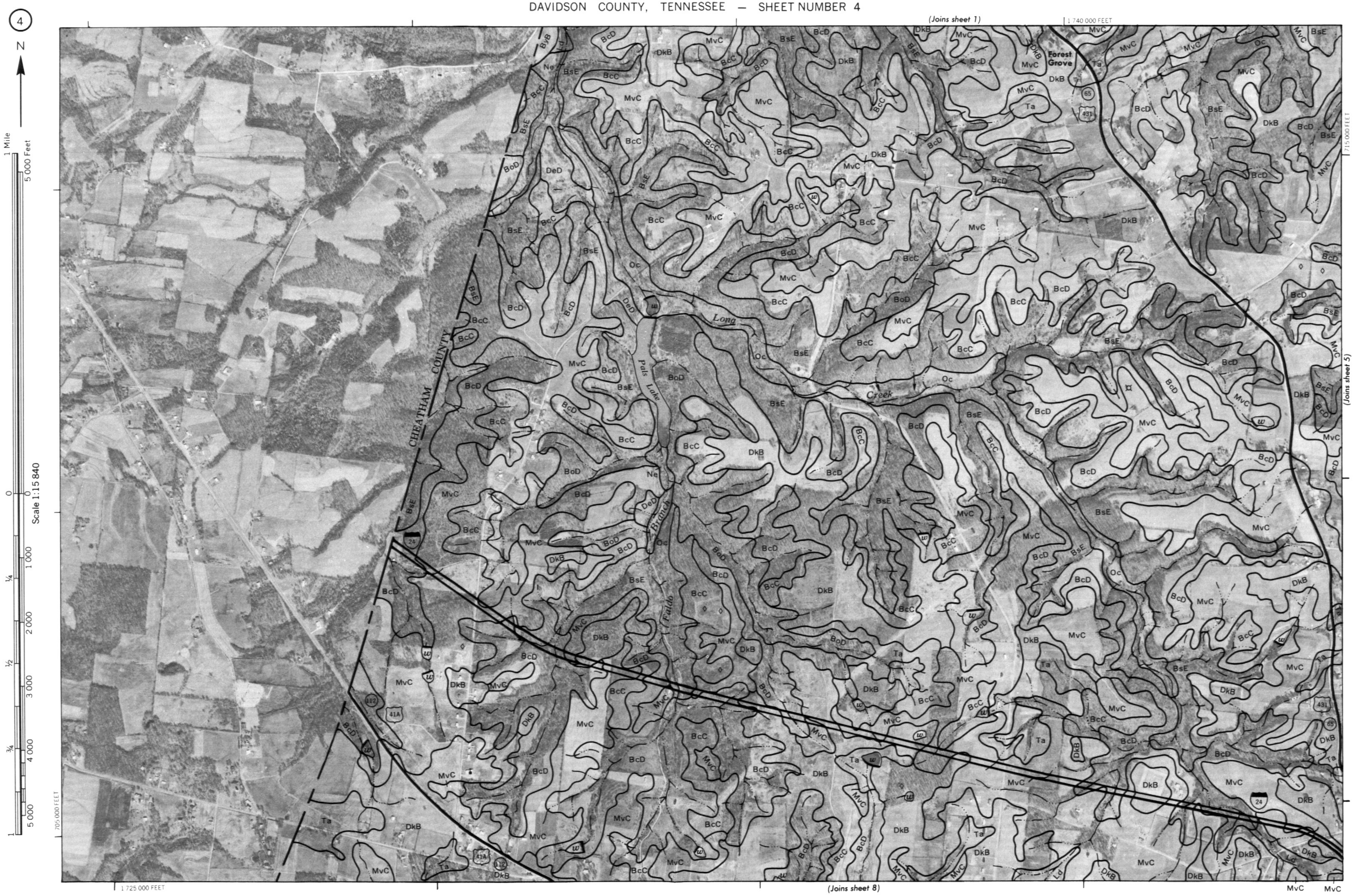
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CHEATHAM COUNTY
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Long Creek
Pals Lake
Faldo Branch
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41A
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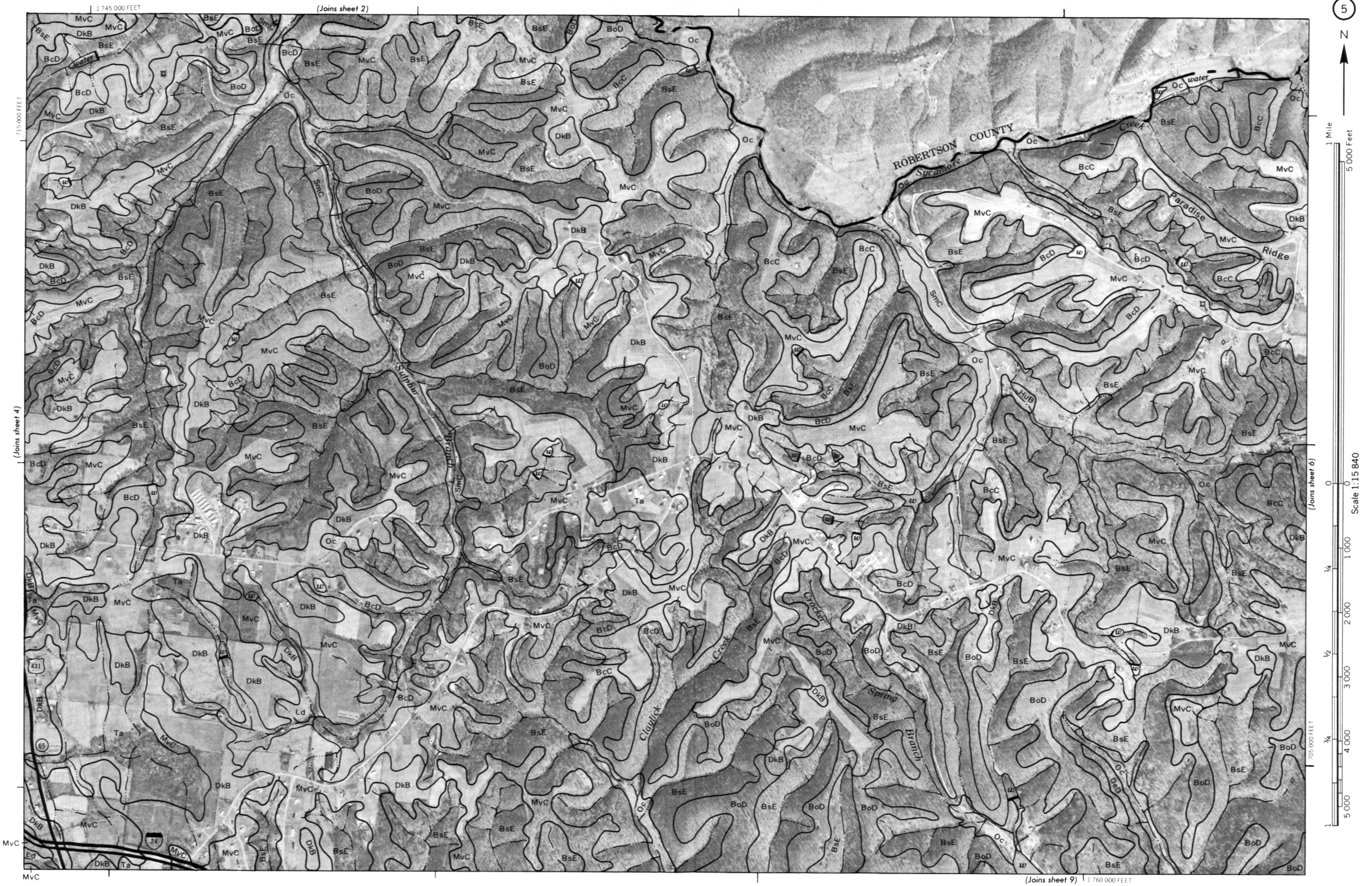

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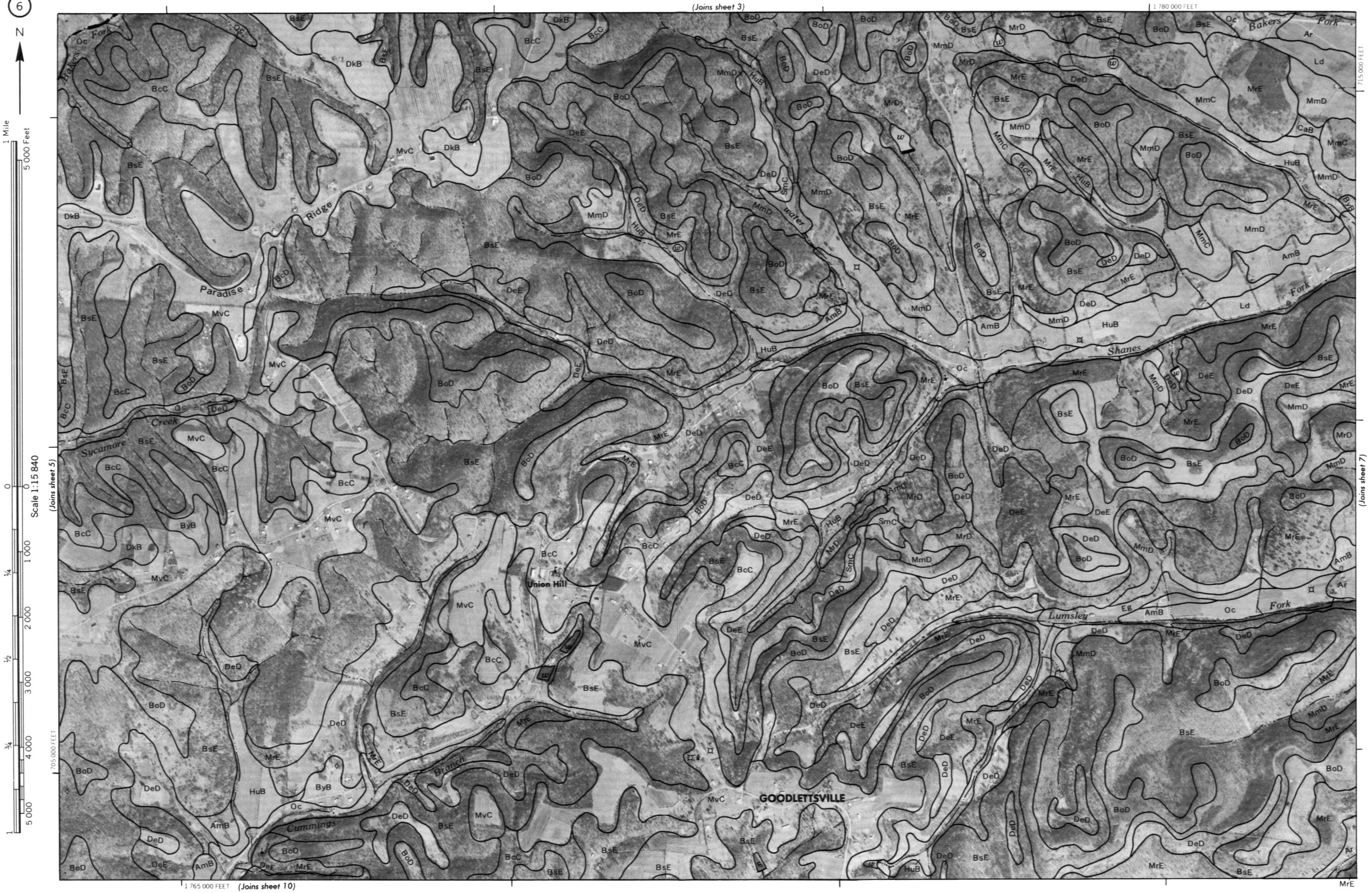

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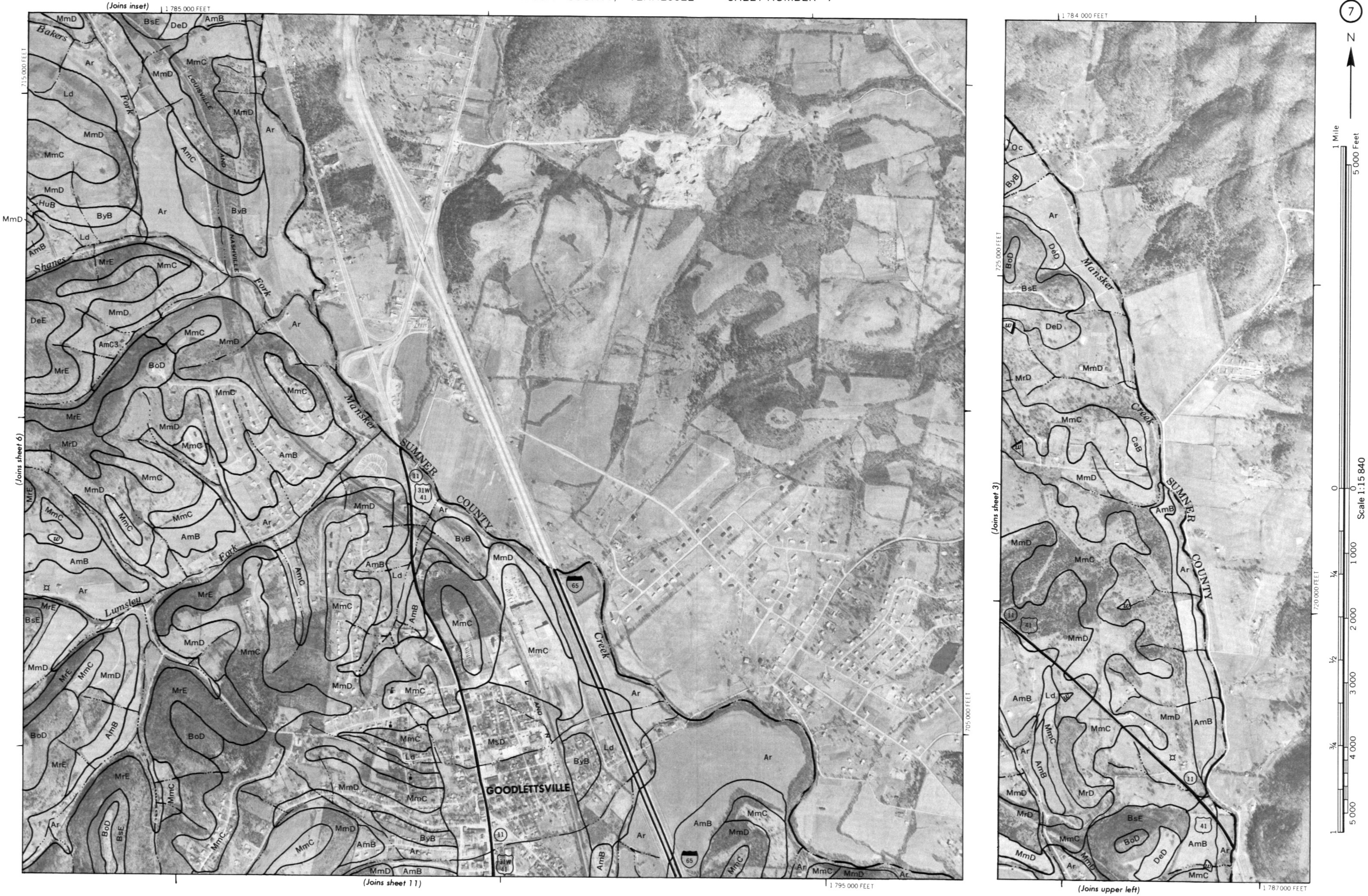

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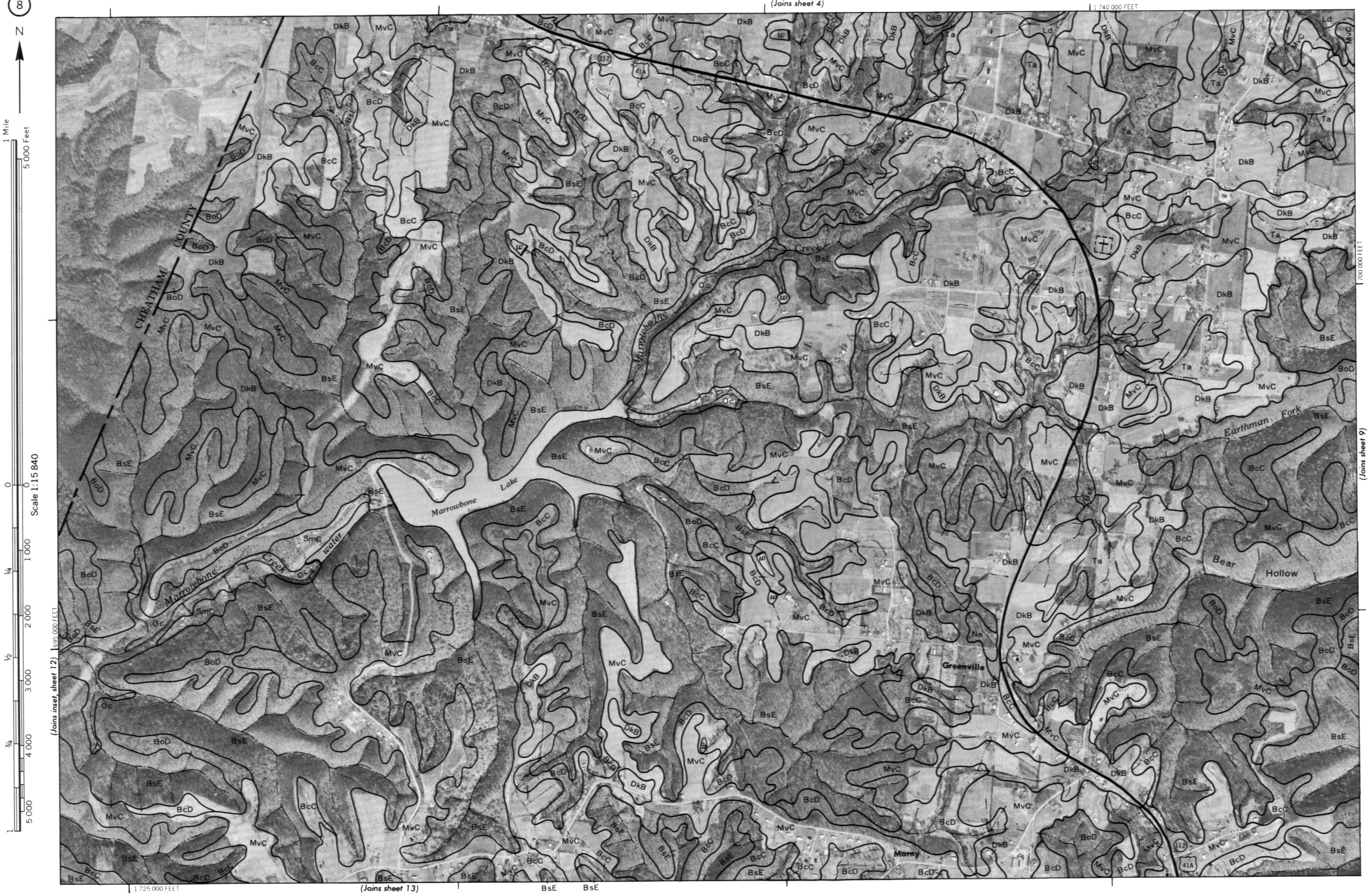

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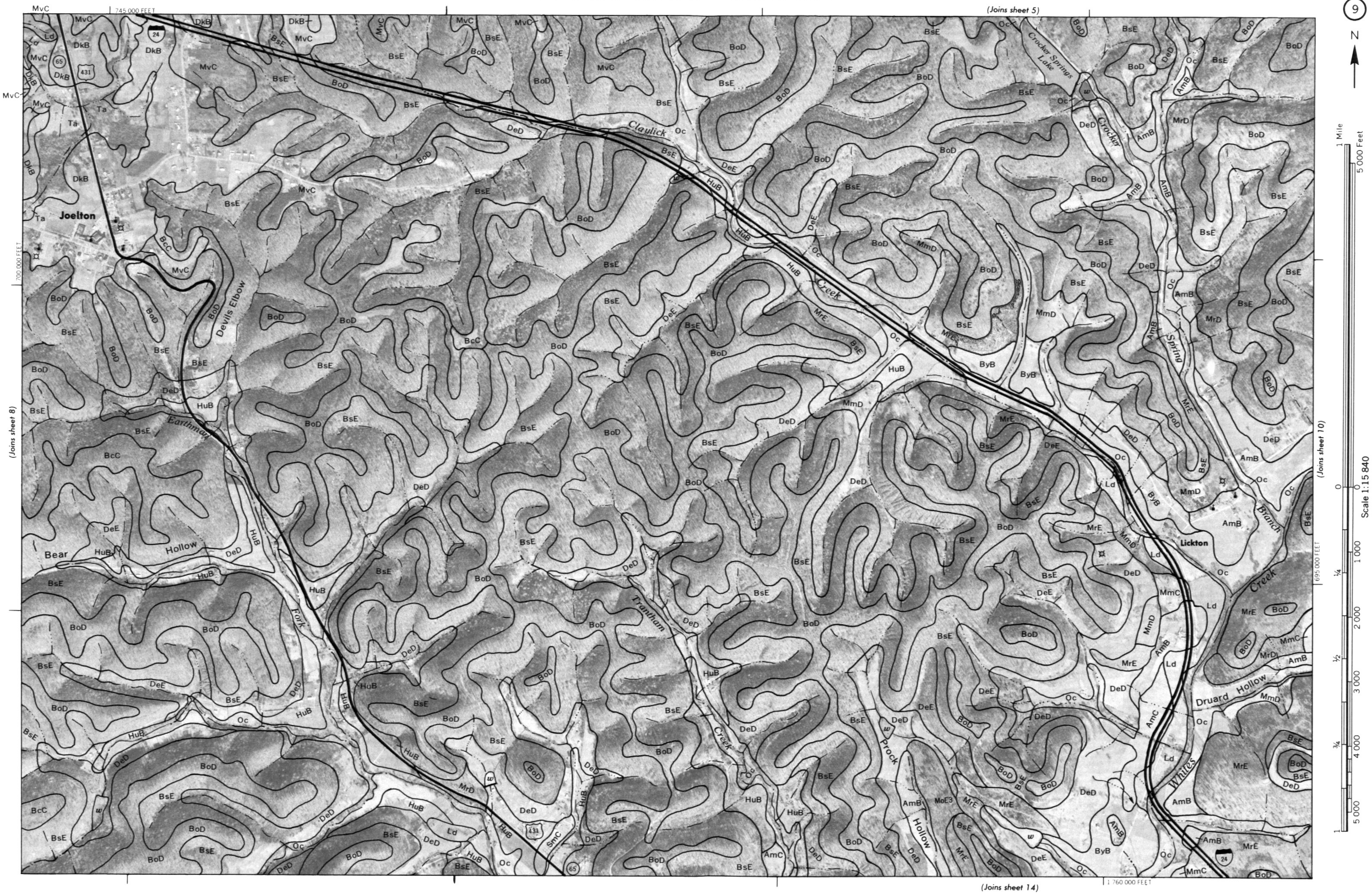

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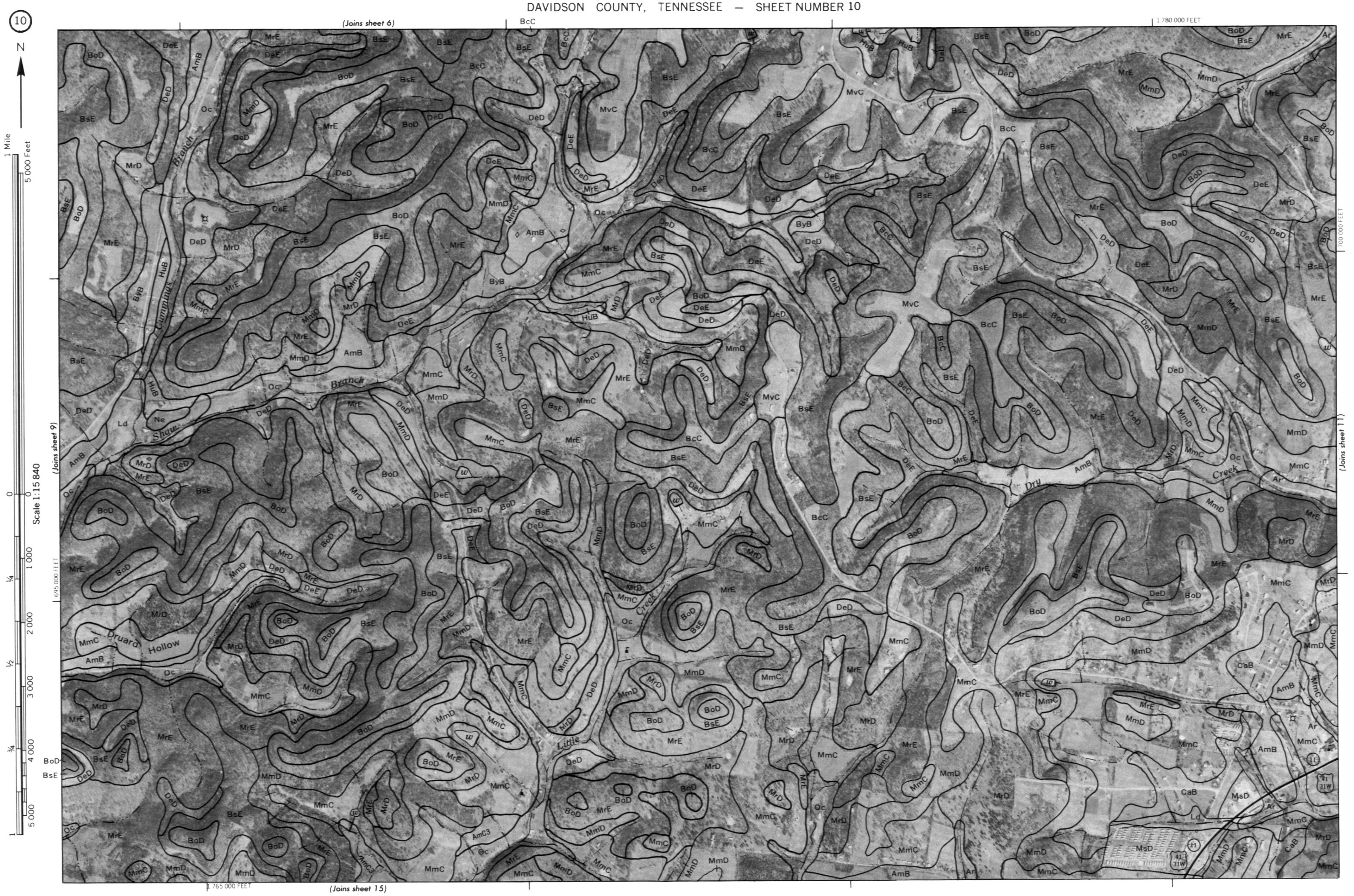

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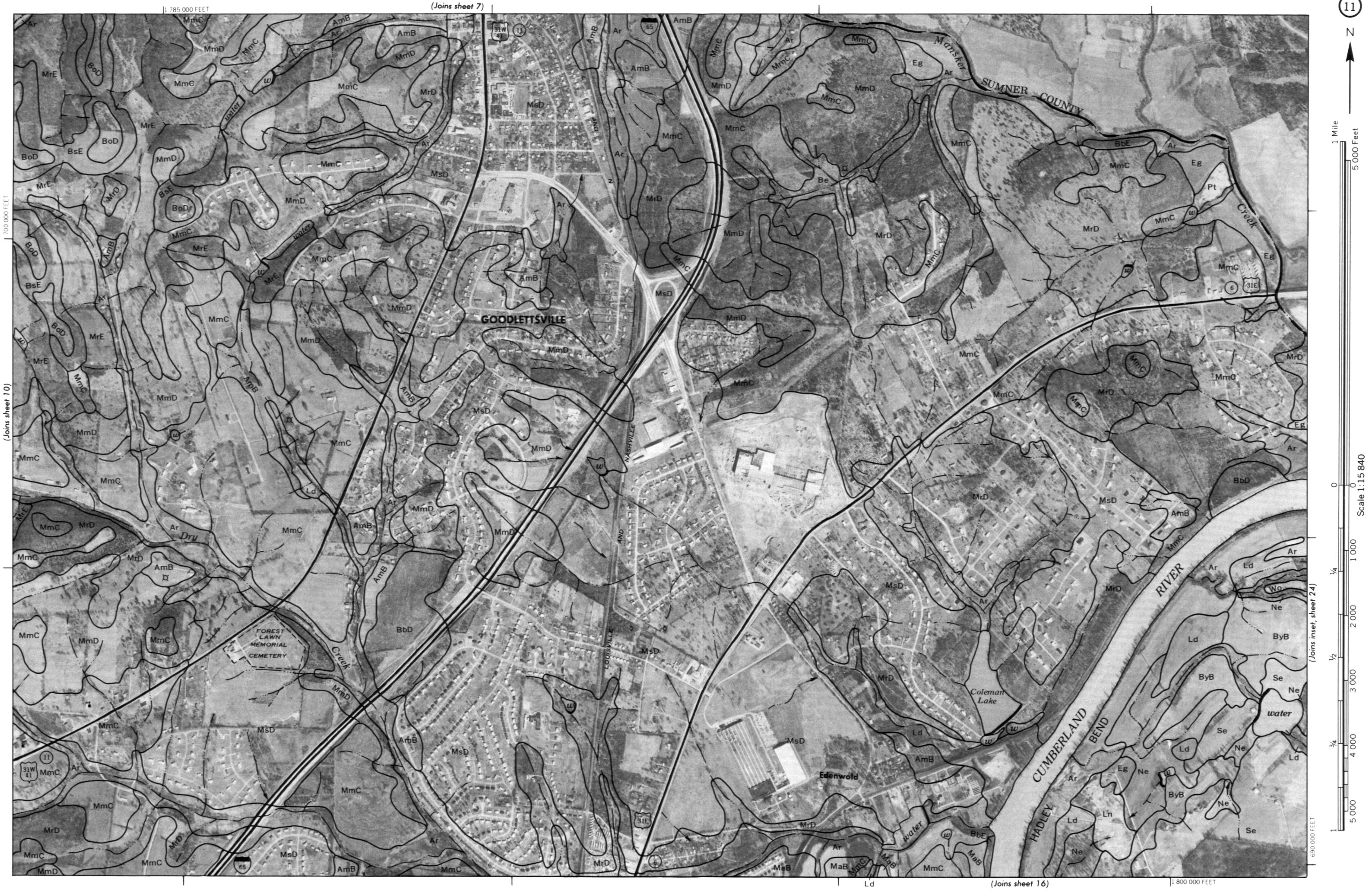

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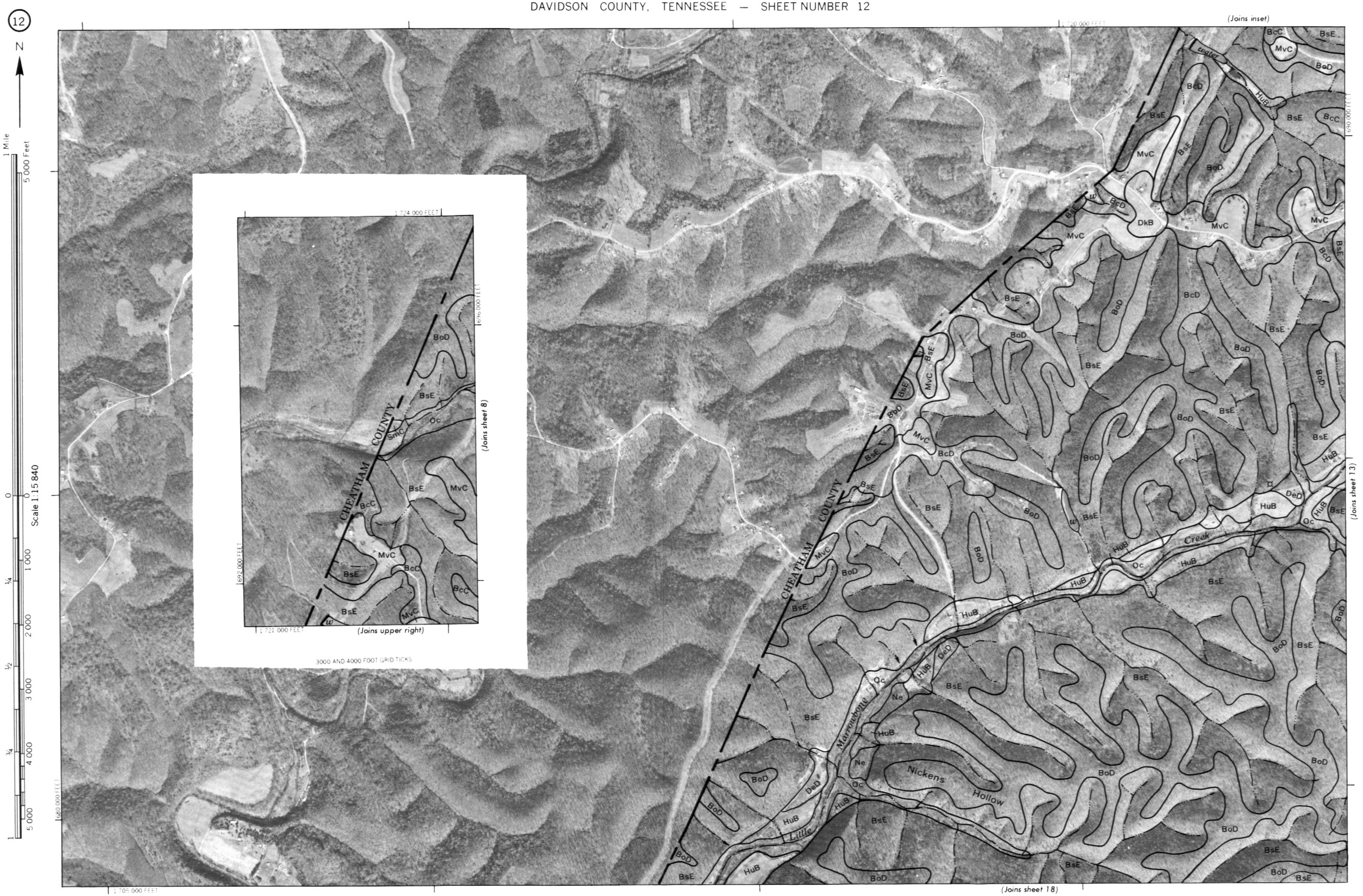

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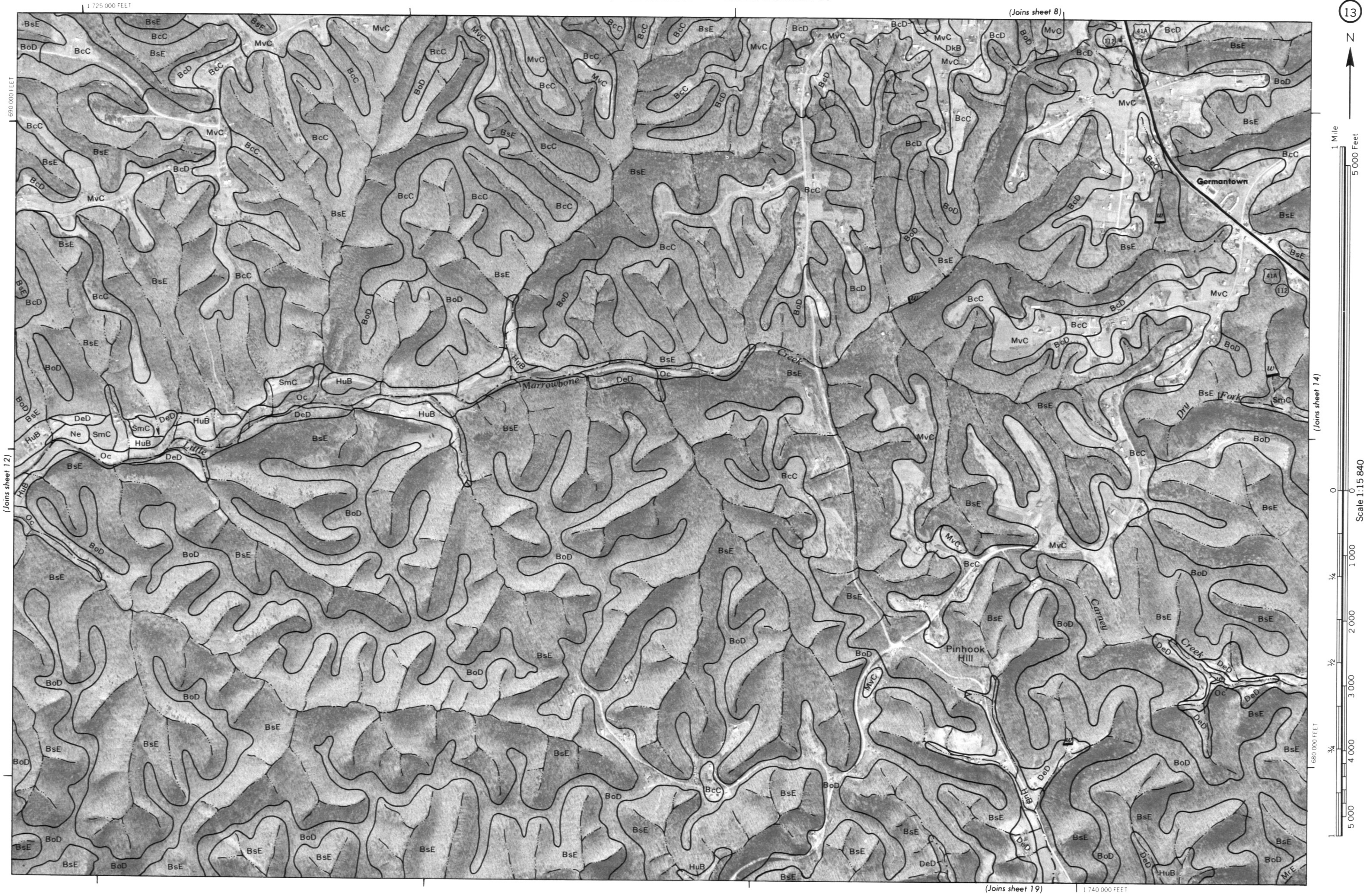

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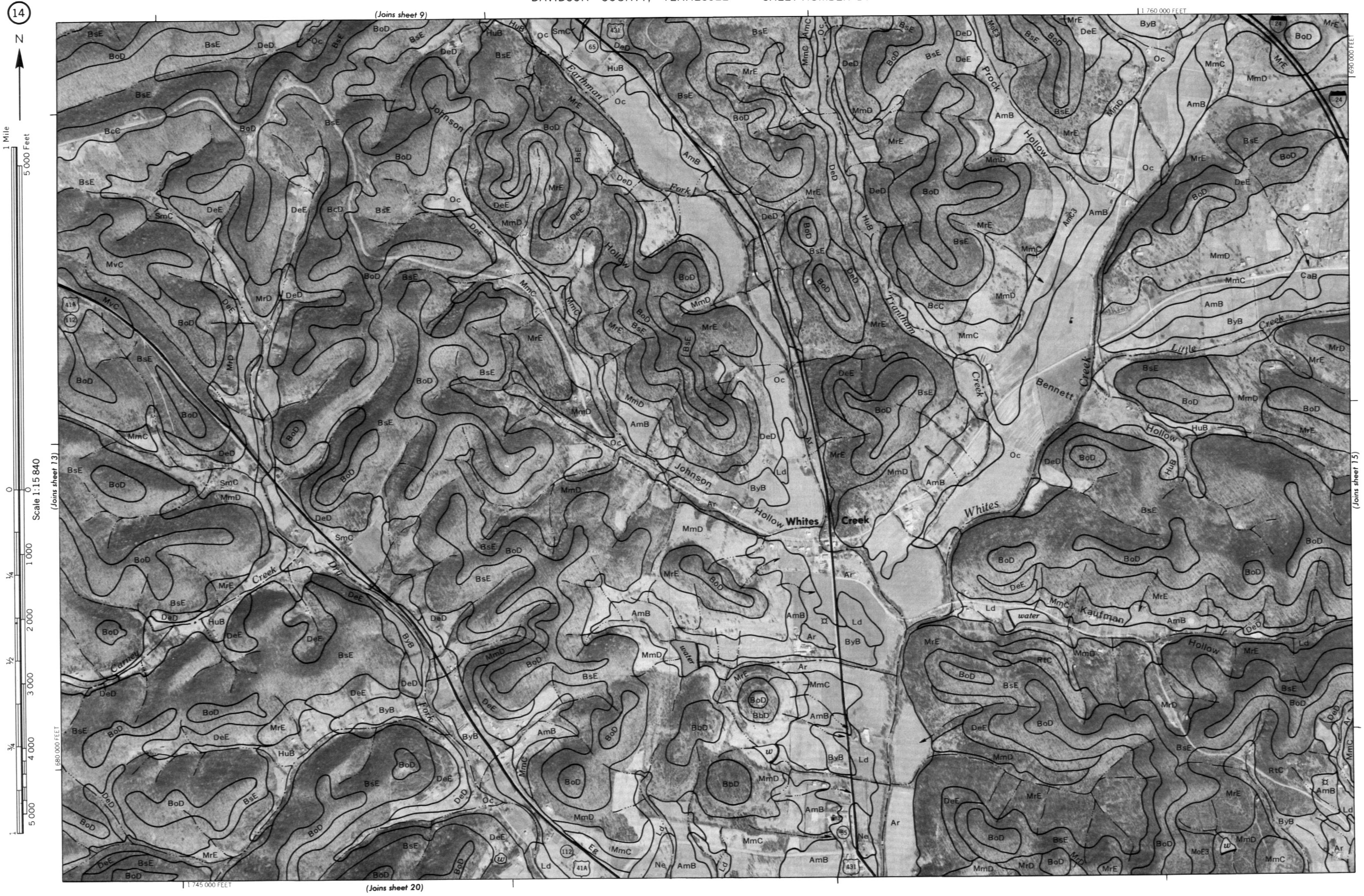

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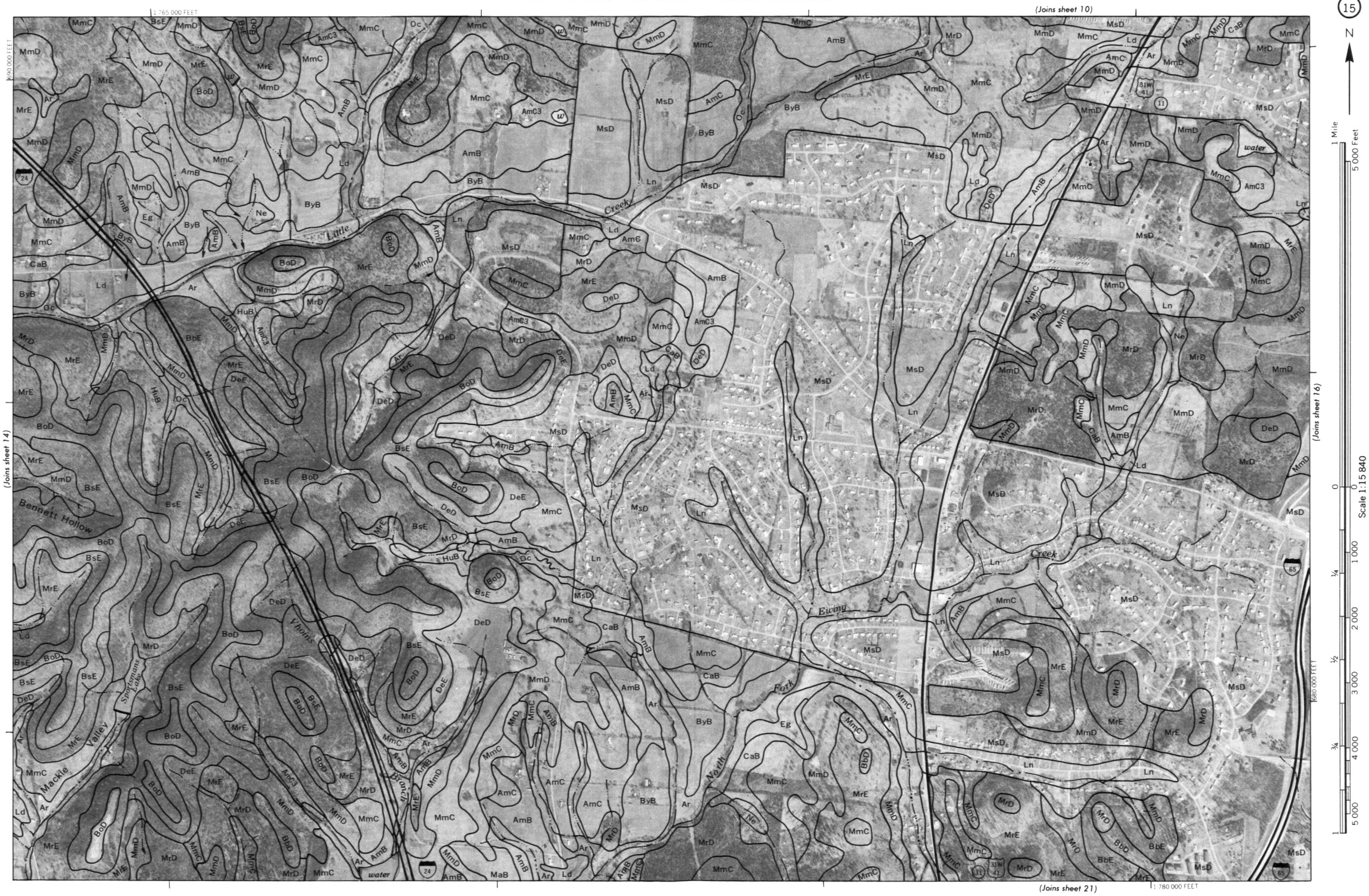

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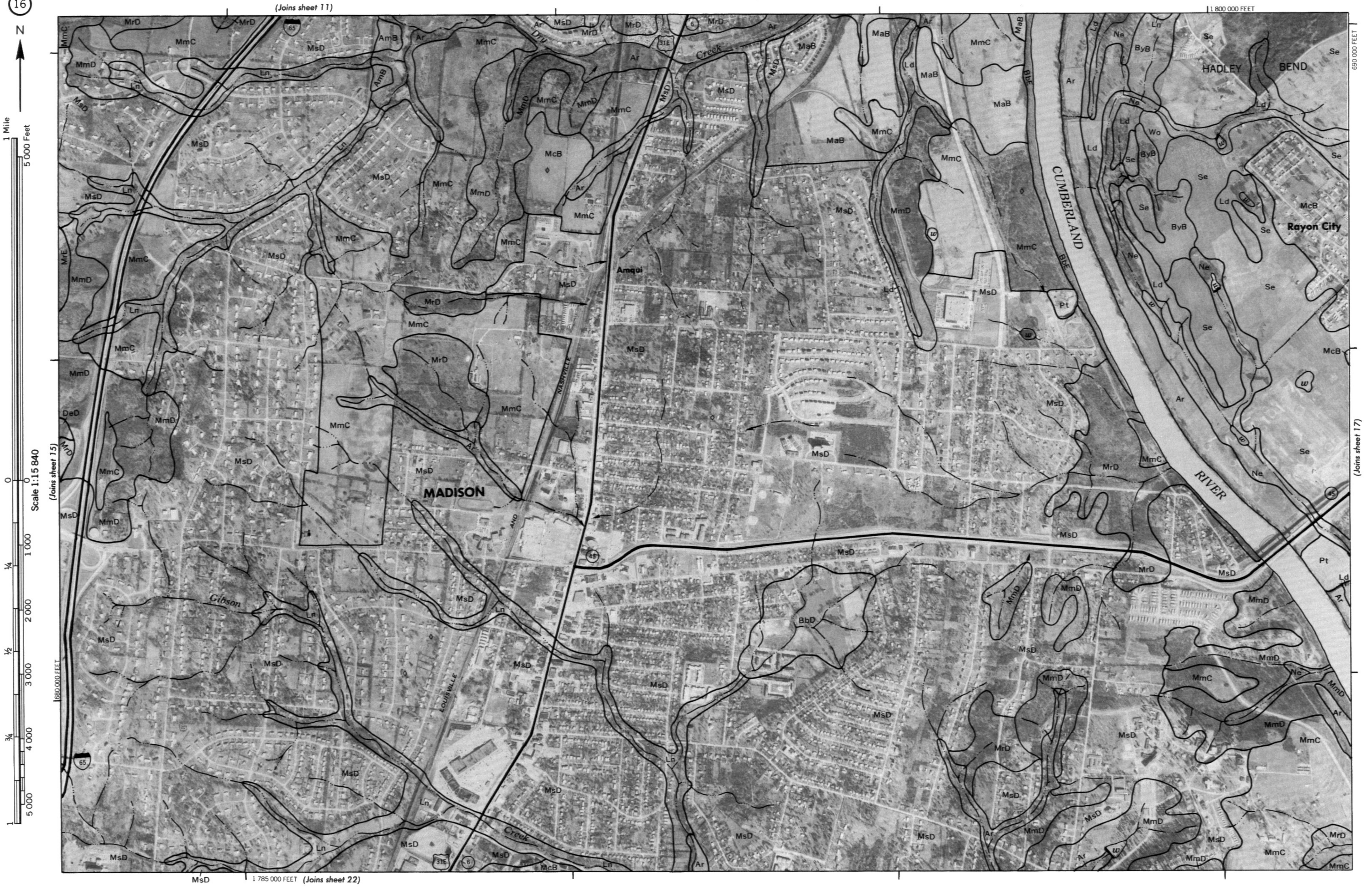

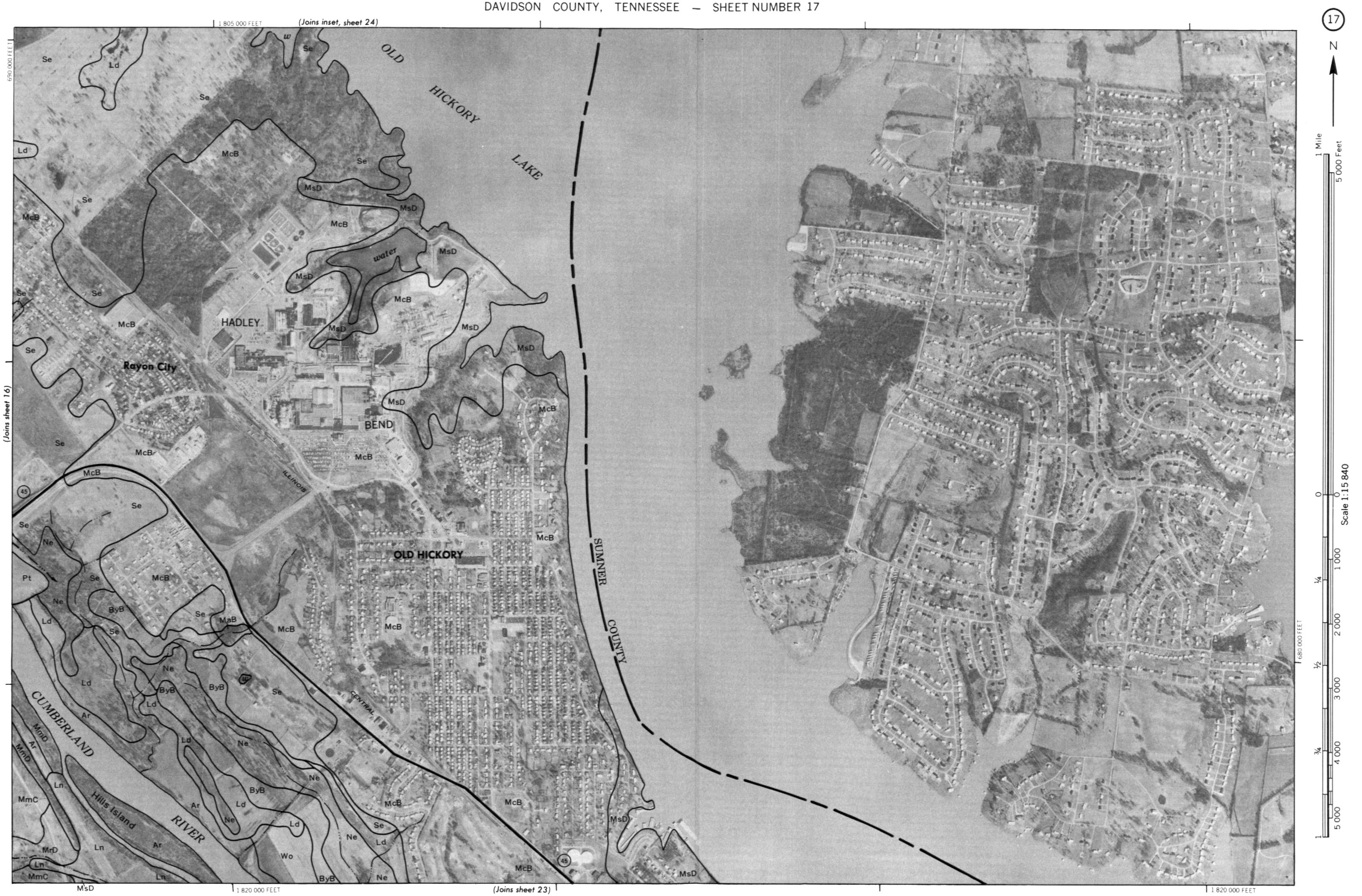
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CENTRAL
CUMBERLAND RIVER
Hills Island
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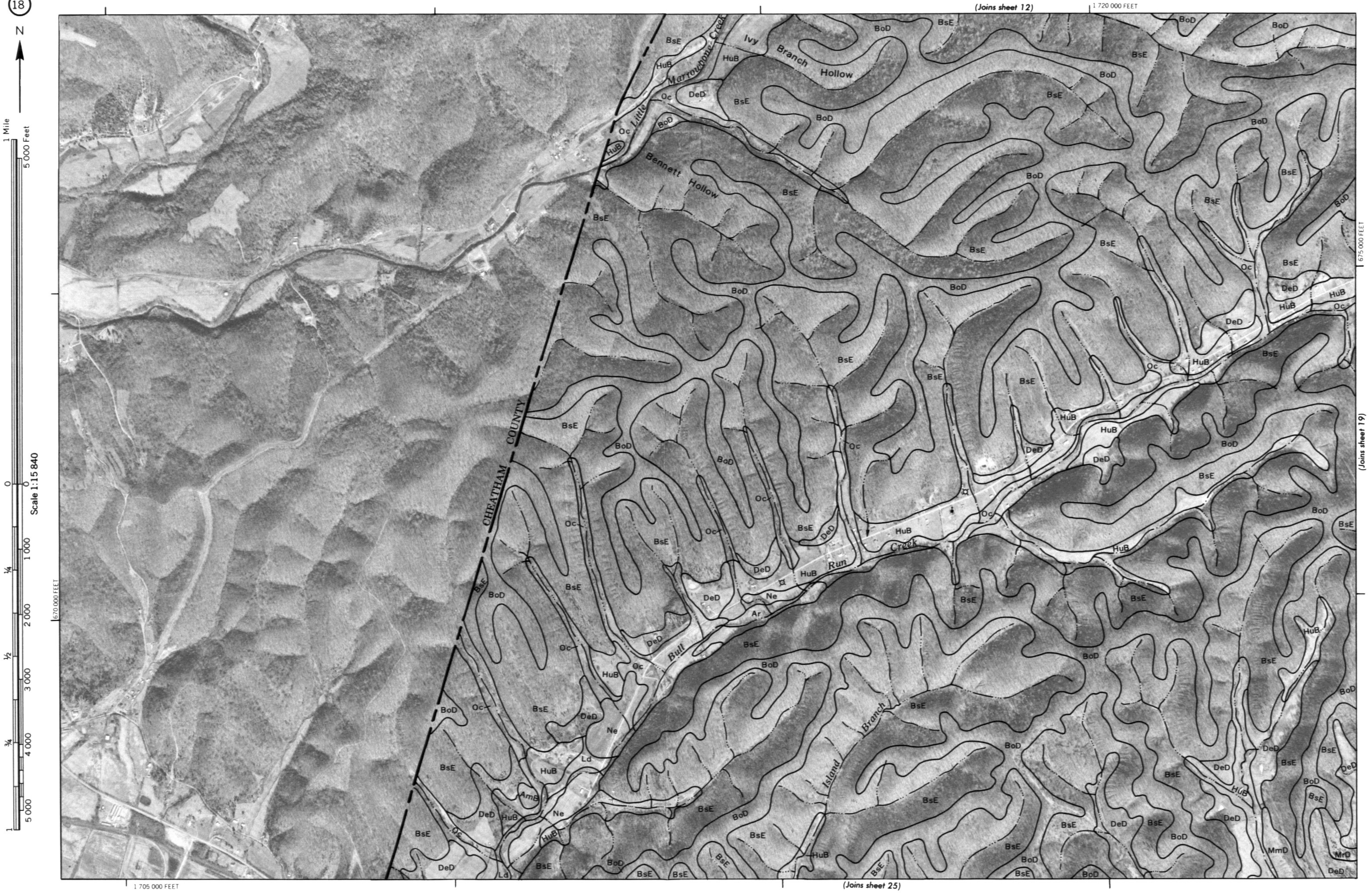

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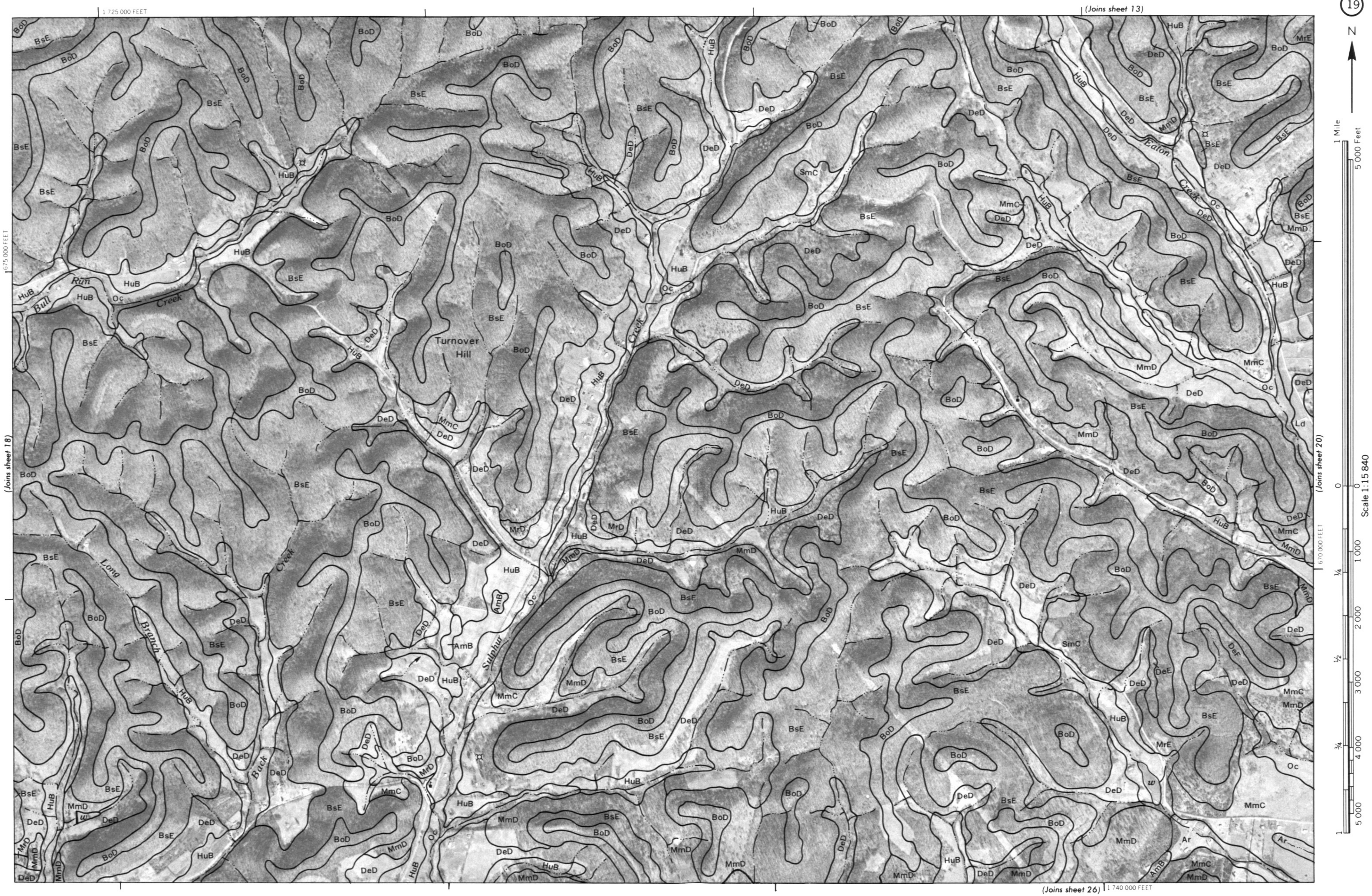

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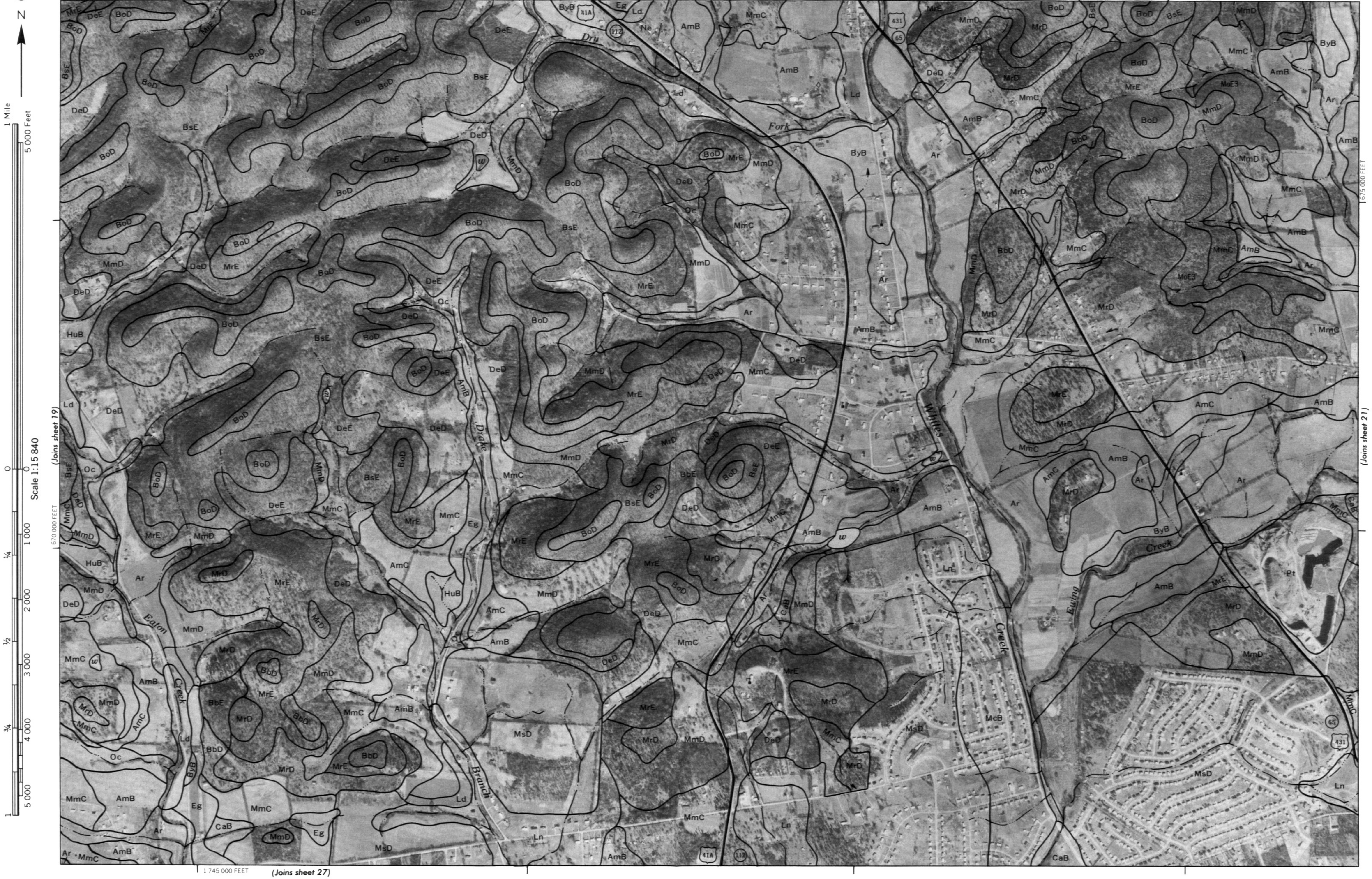

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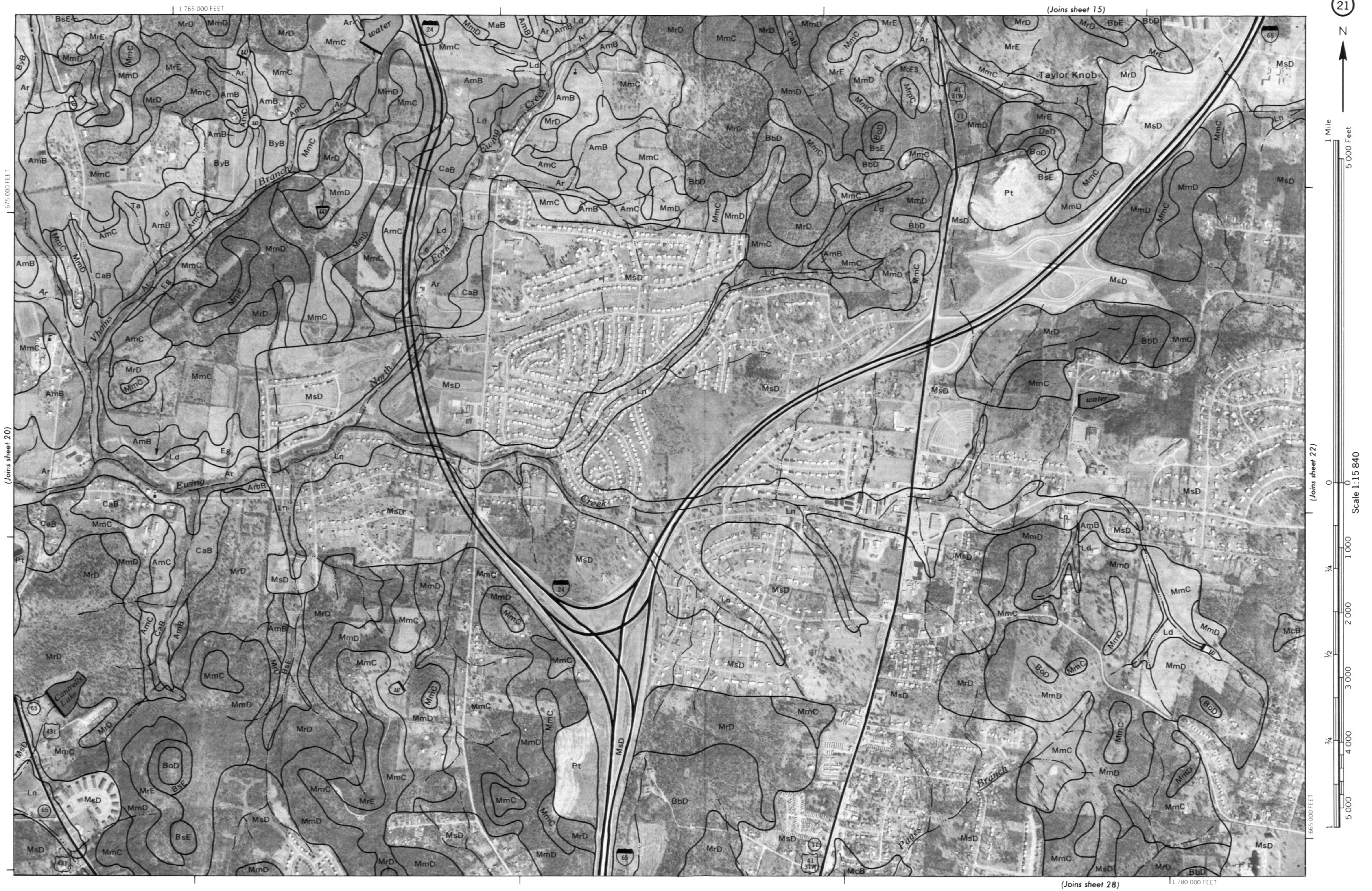

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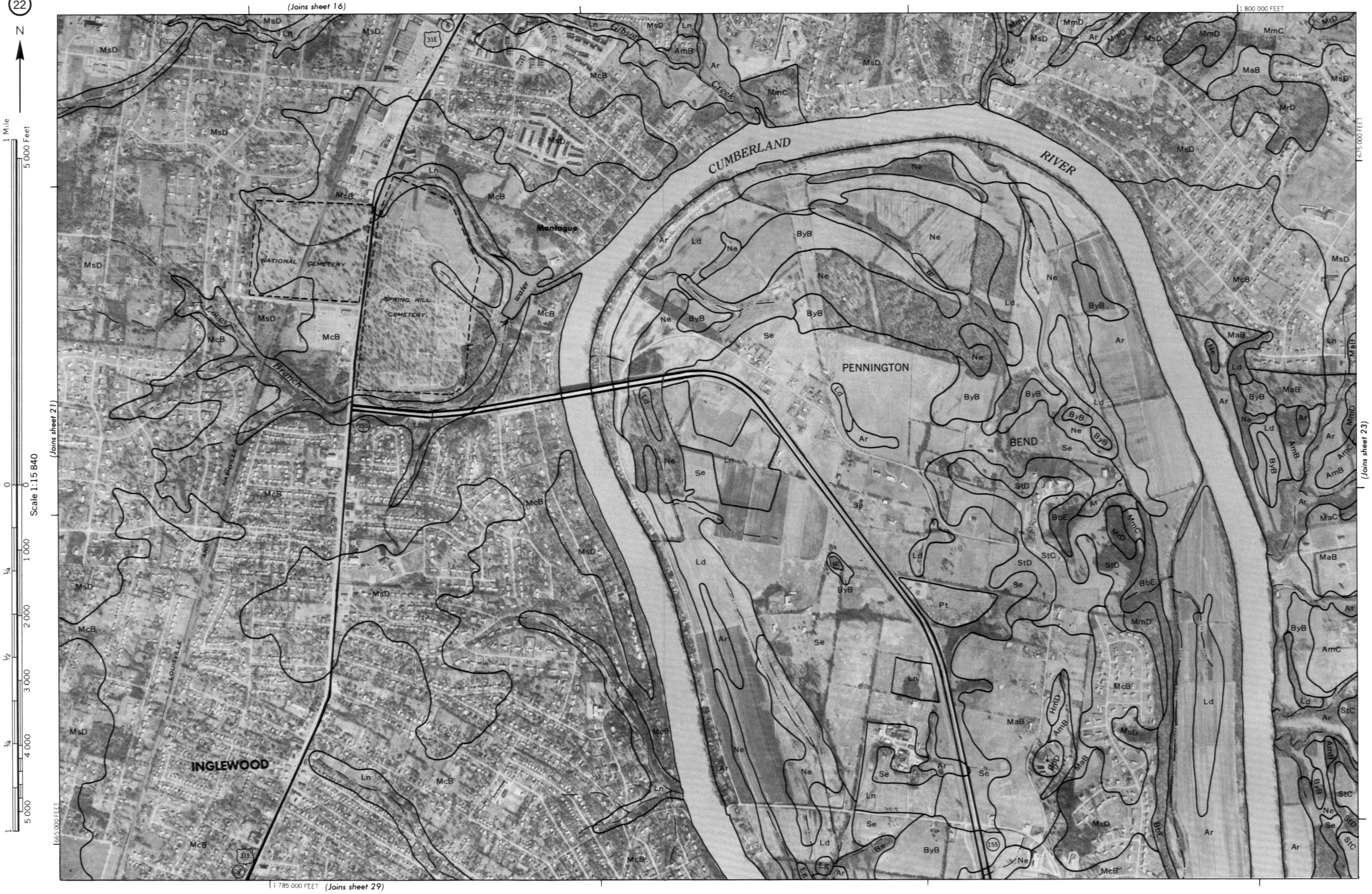

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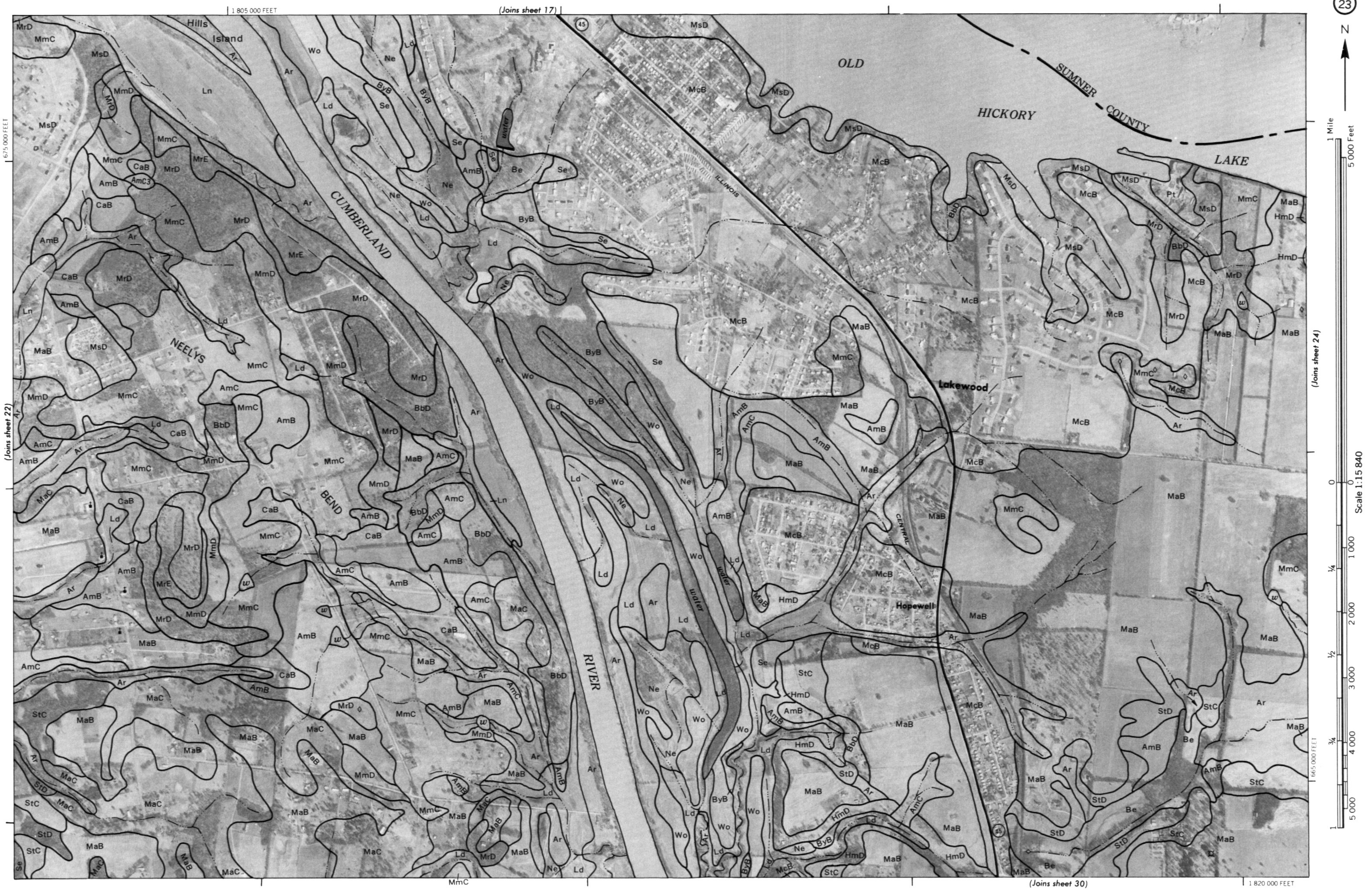

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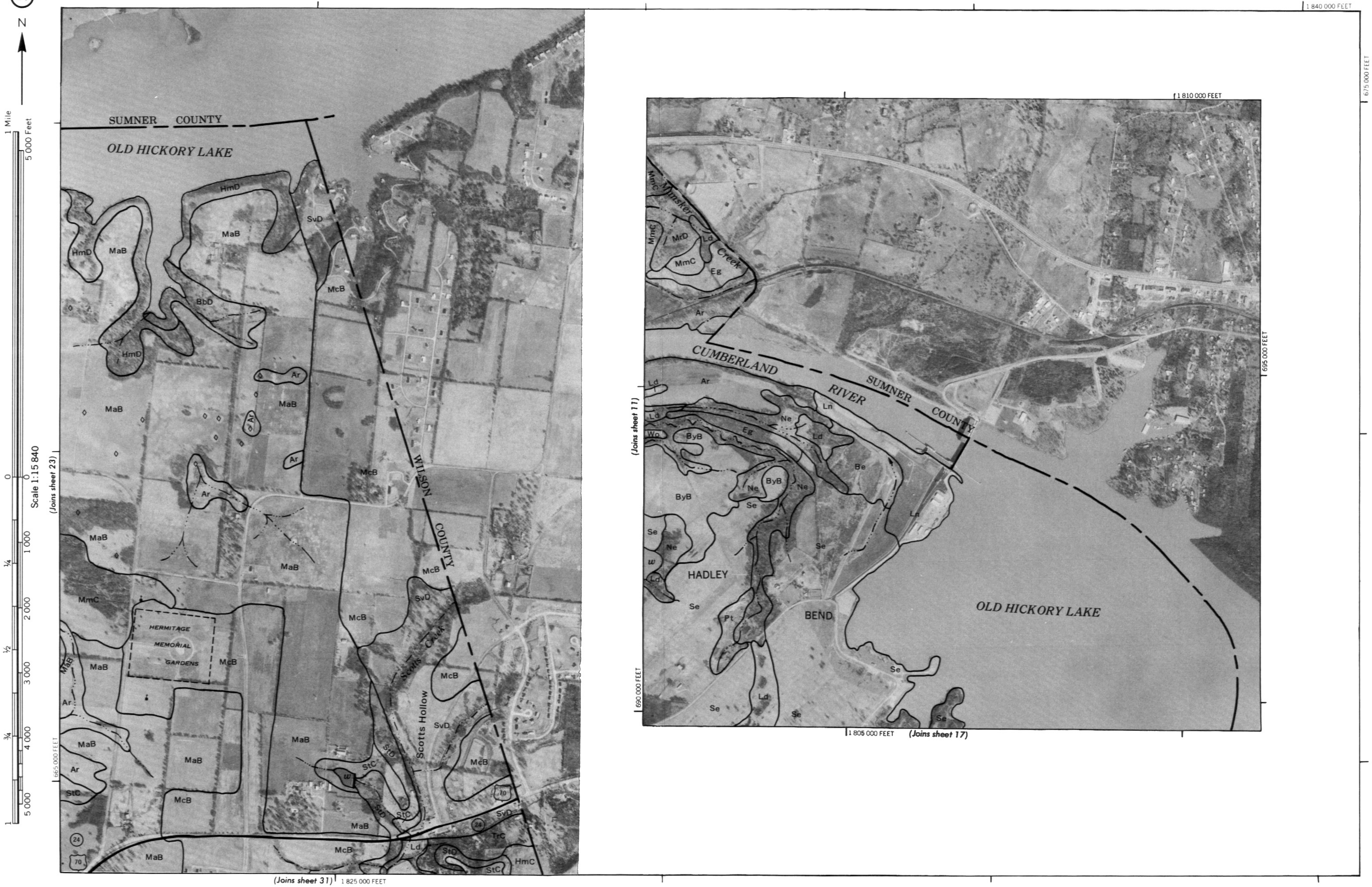

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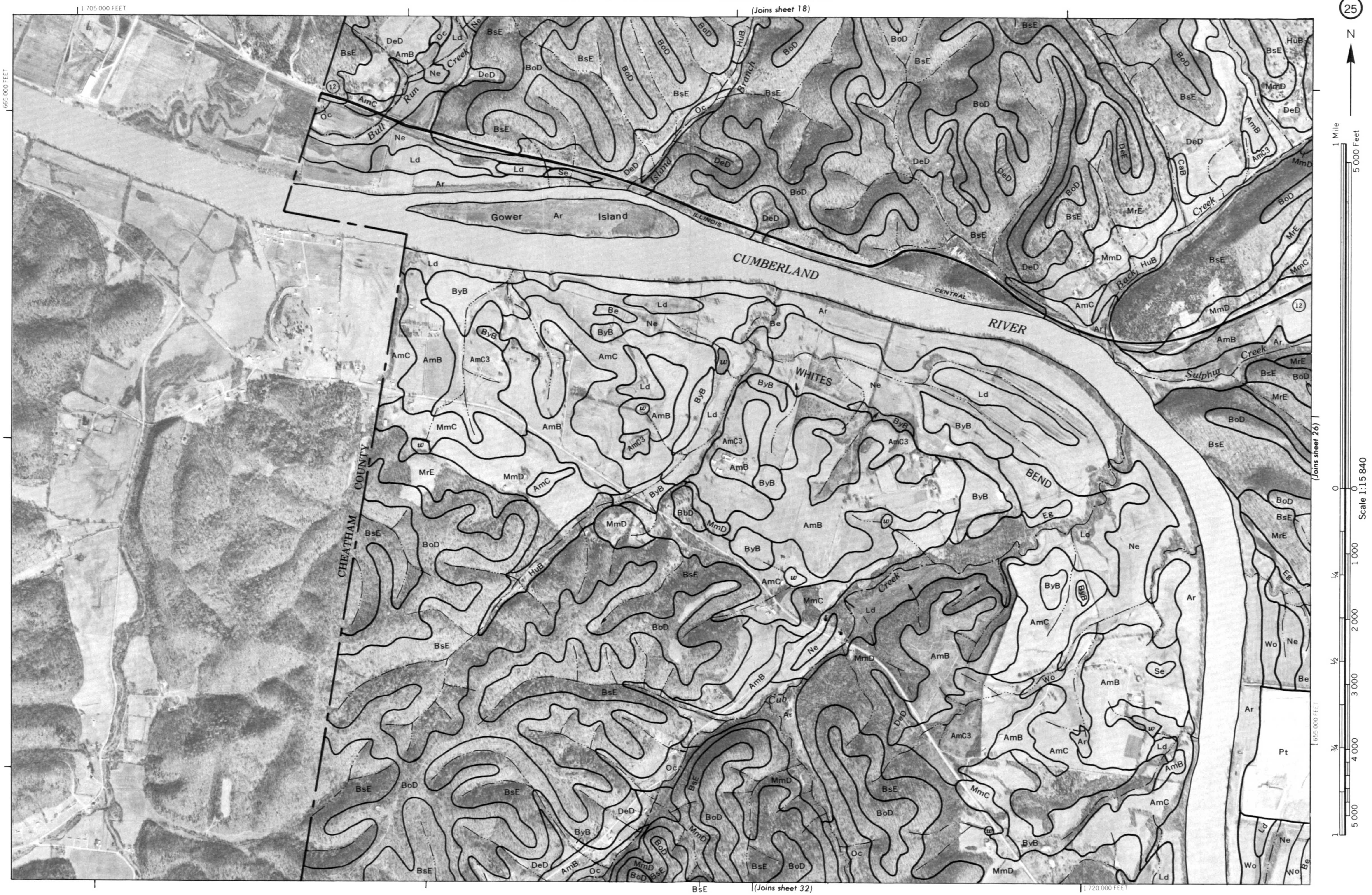

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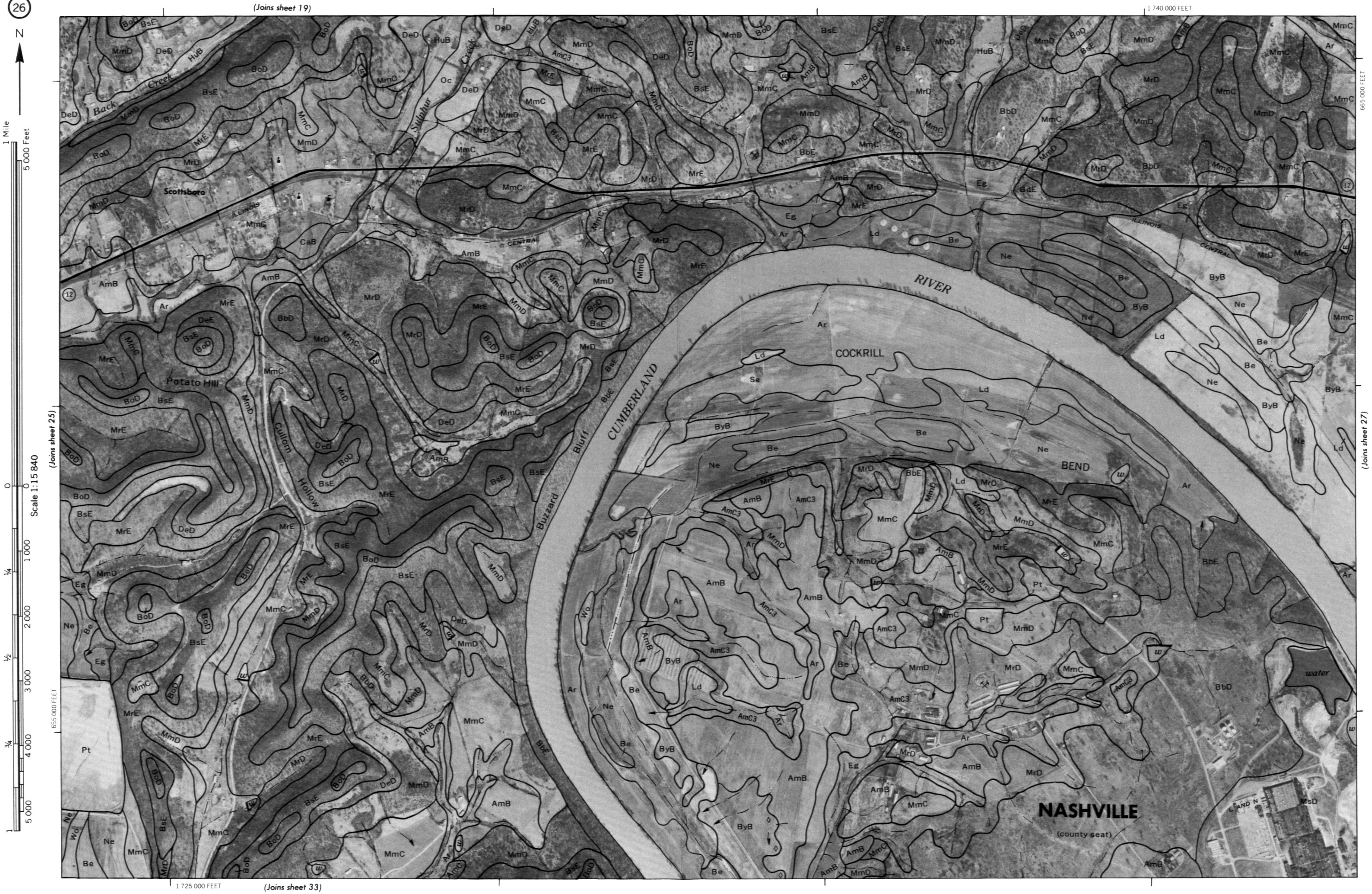

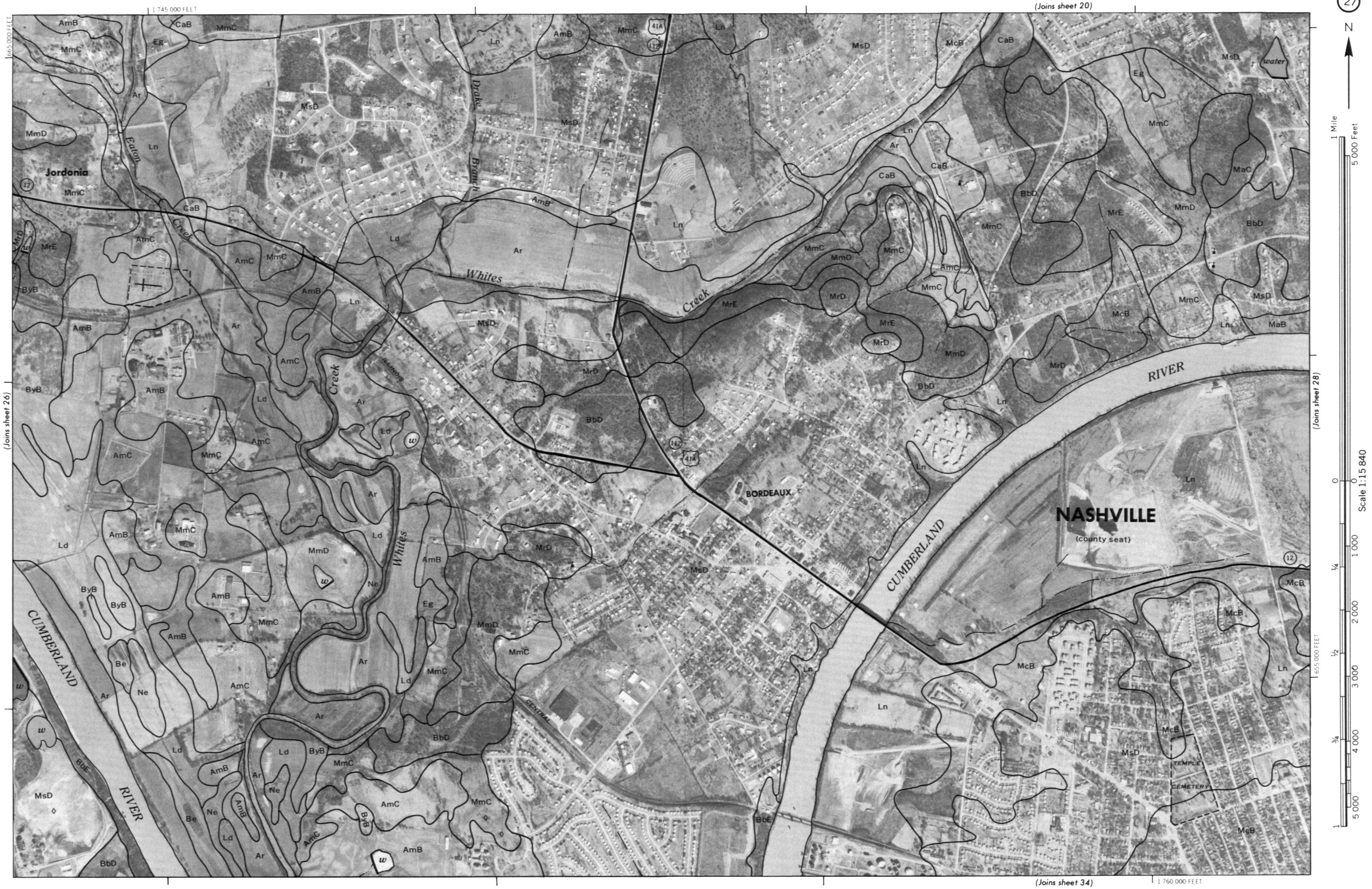
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NASHVILLE
(county seat)
BORDEAUX
Jordonia
CUMBERLAND
RIVER
Whites
Creek
Eaton
Drake
Branch
ILLINOIS
CENTRAL
TEMPLE
CEMETERY
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12
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AmB
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Ar
BbD
BbE
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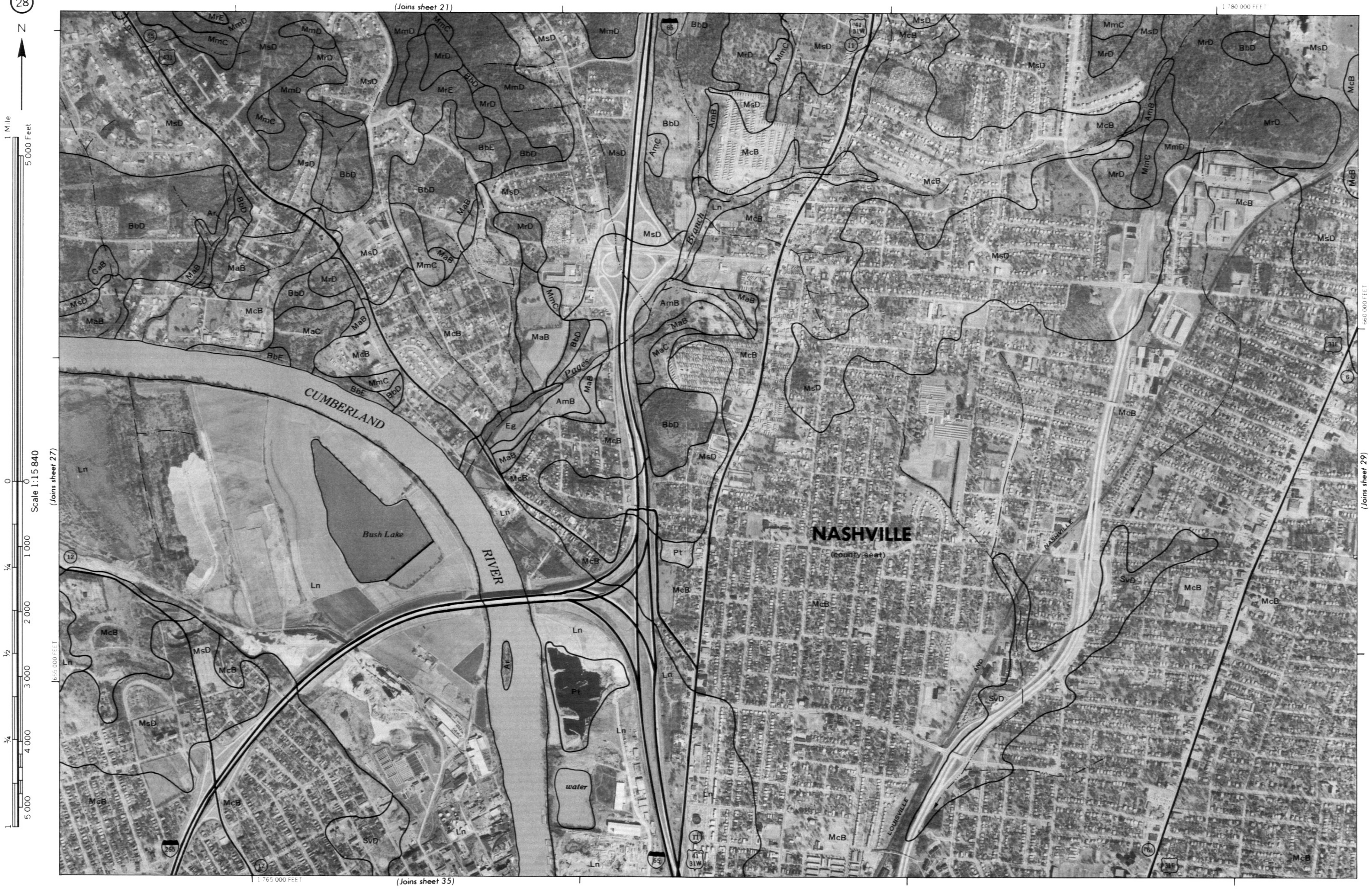
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NASHVILLE
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CUMBERLAND
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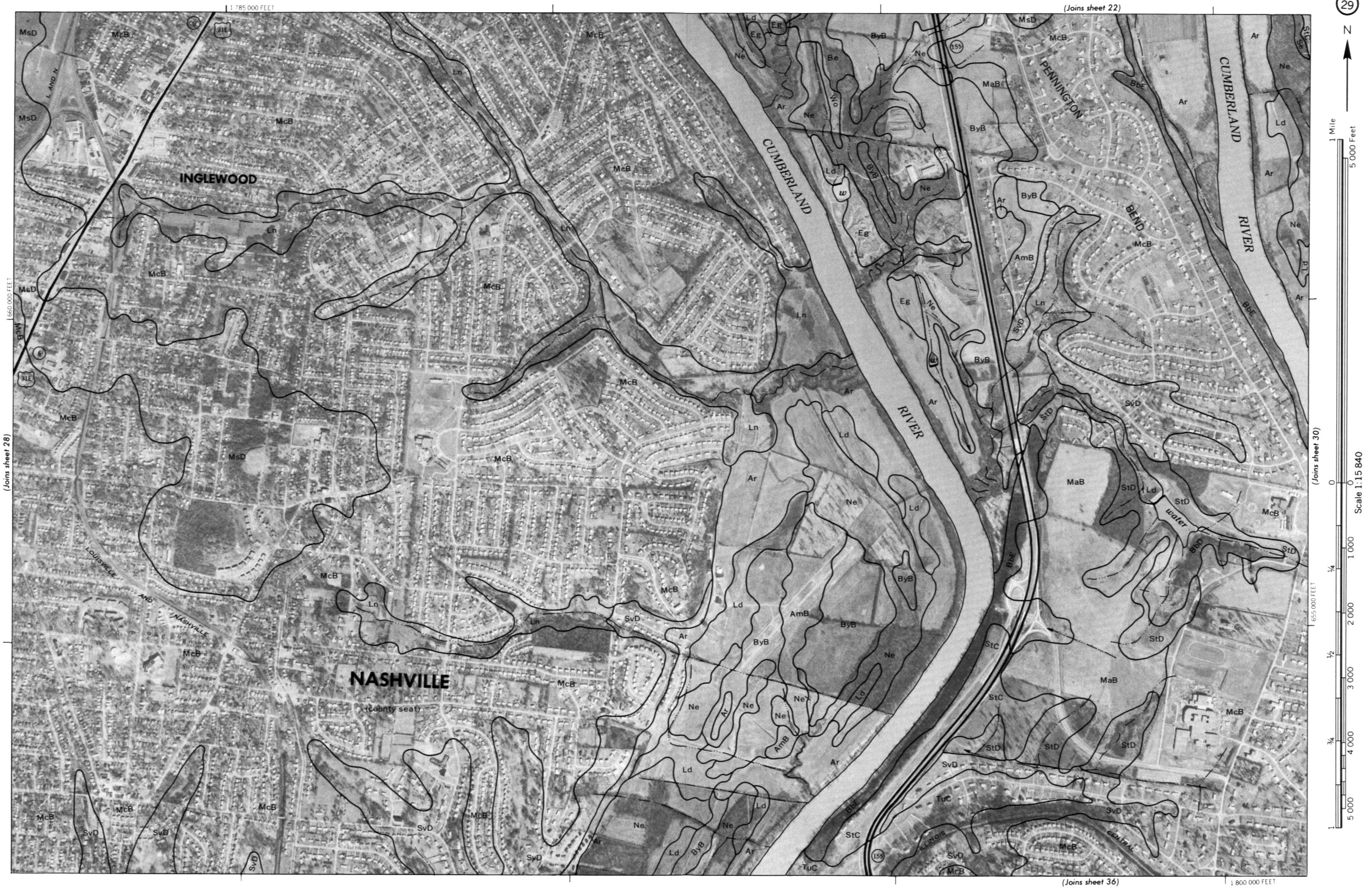

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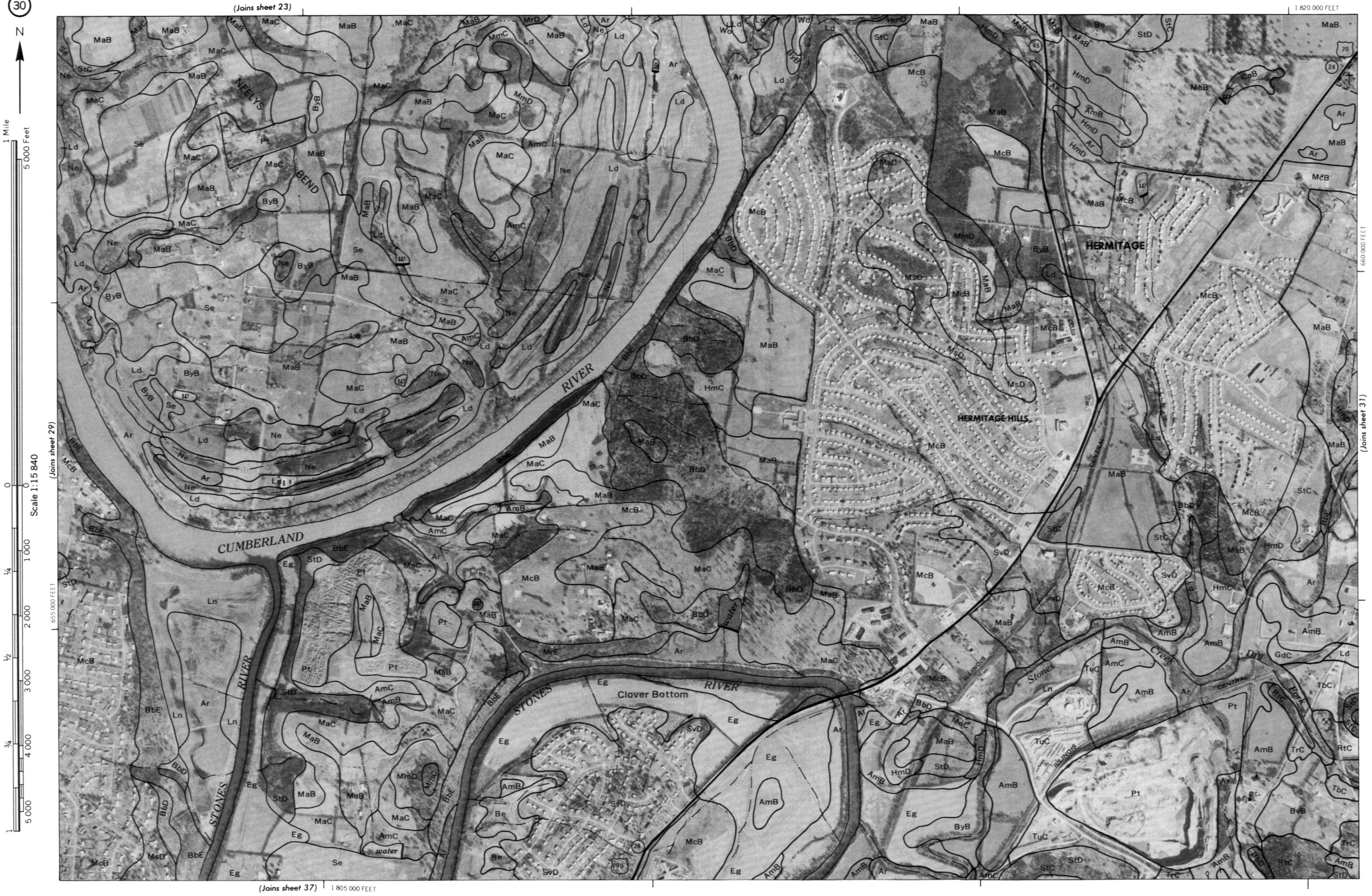

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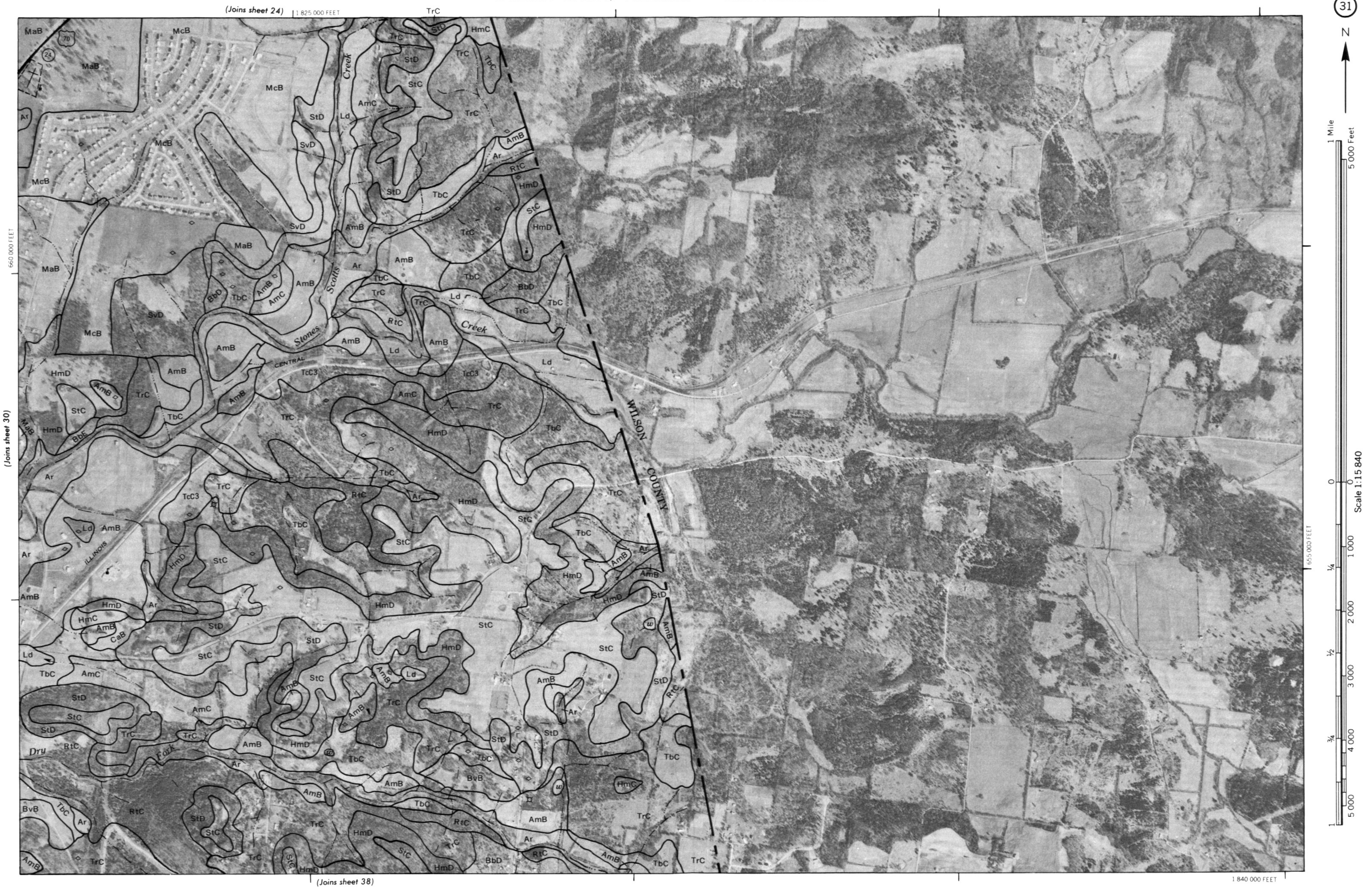

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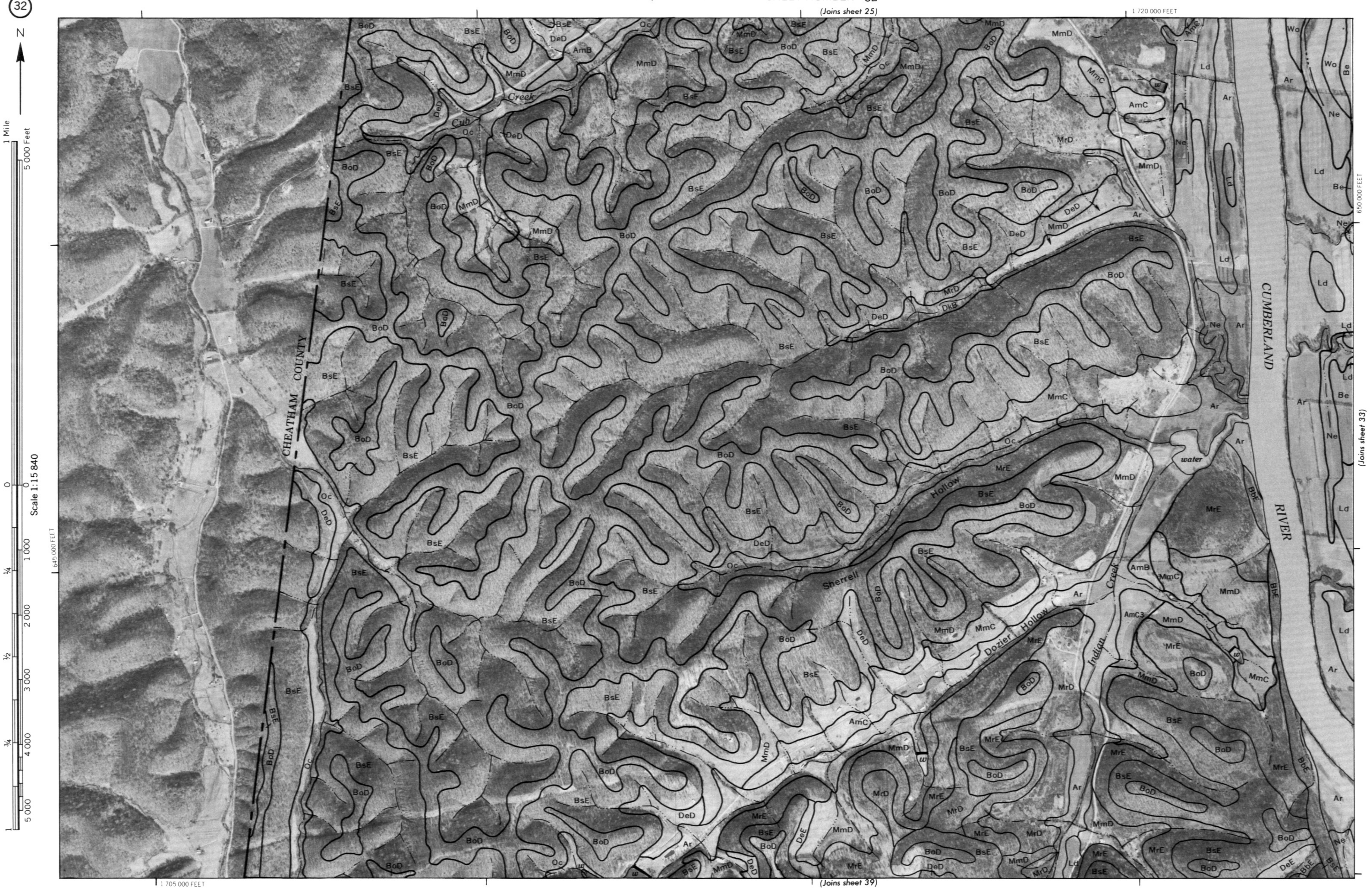

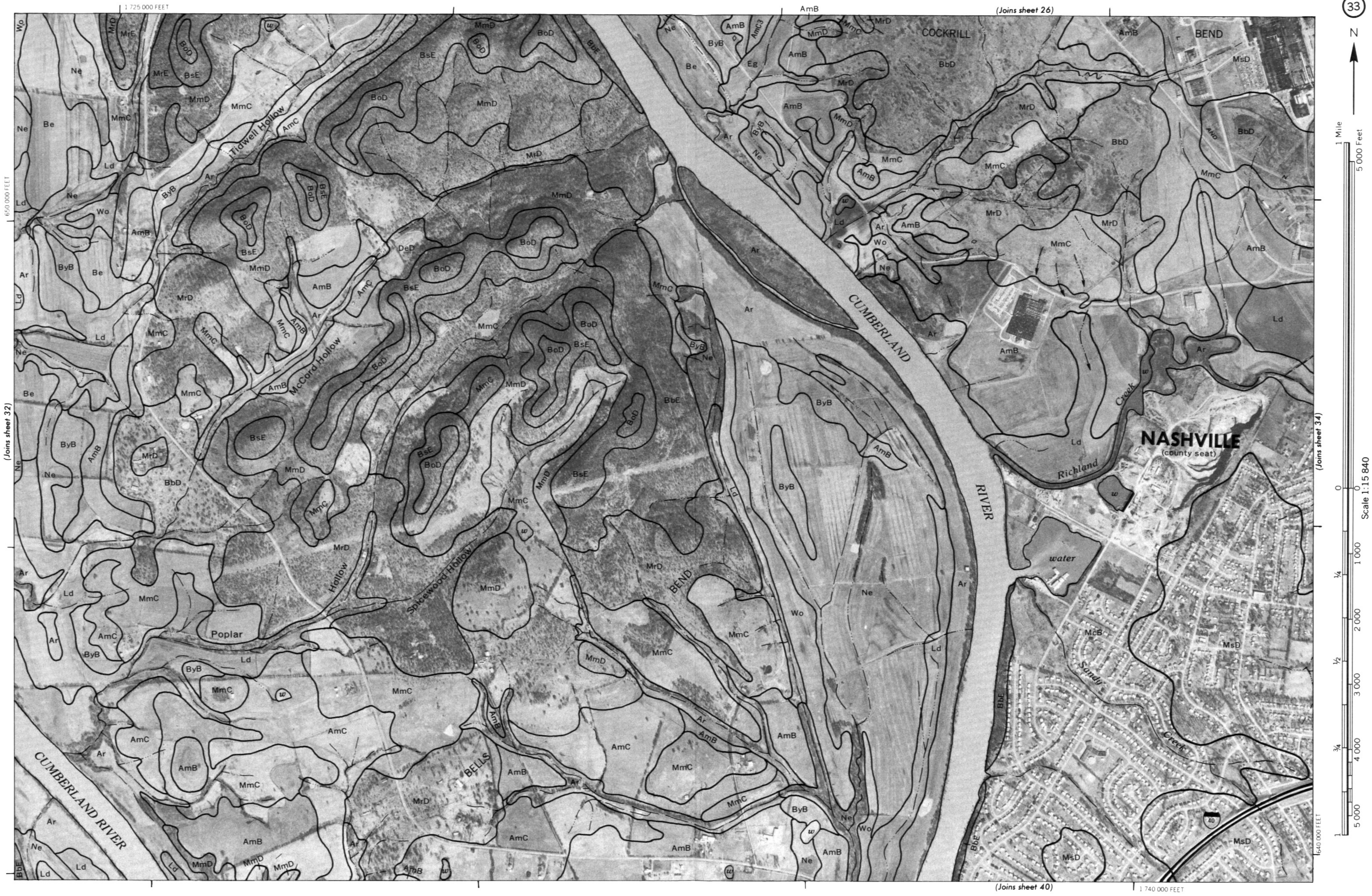
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Tidwell Hollow
McCord Hollow
Spicewood Hollow
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Poplar
BELLS
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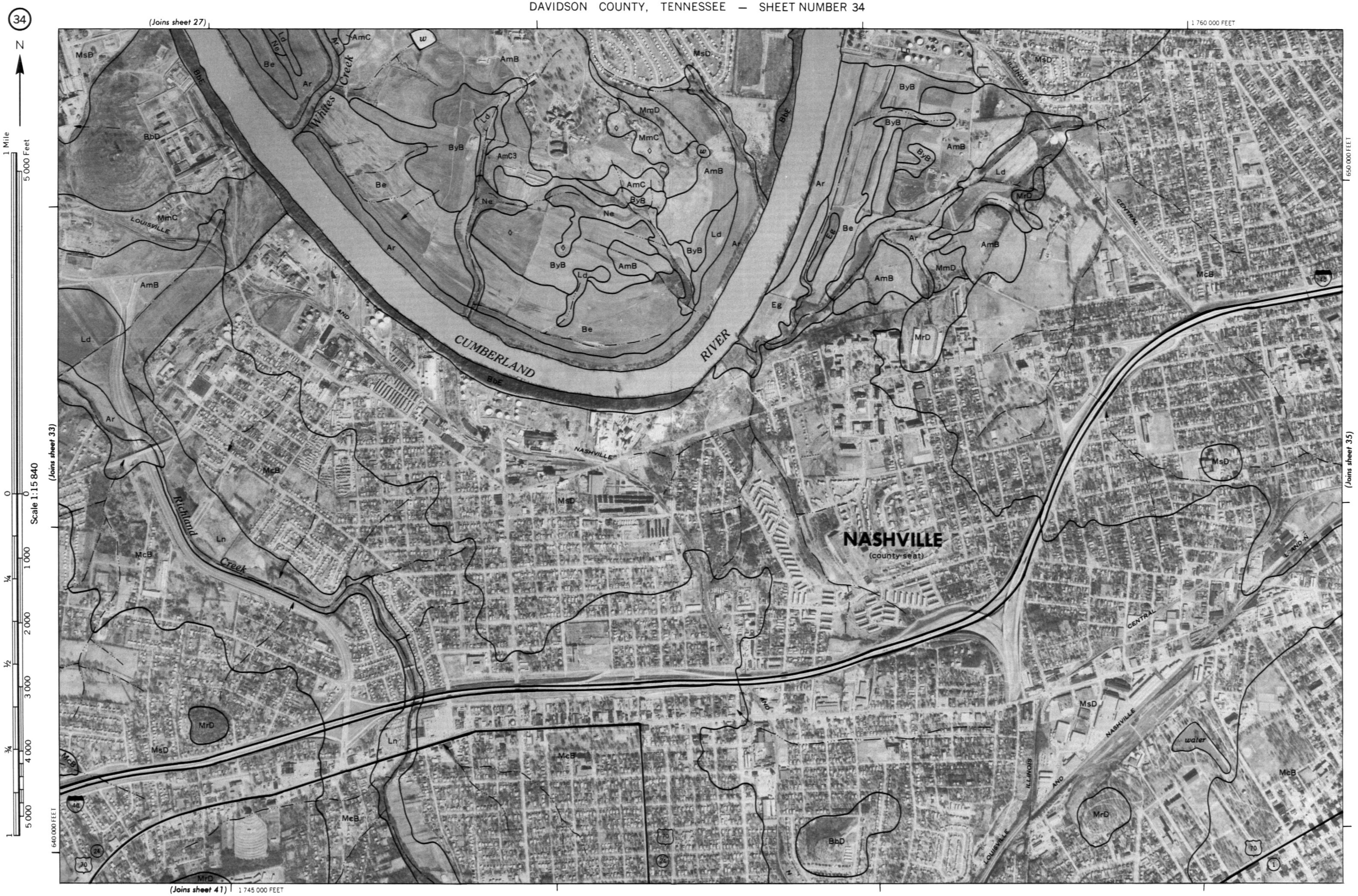
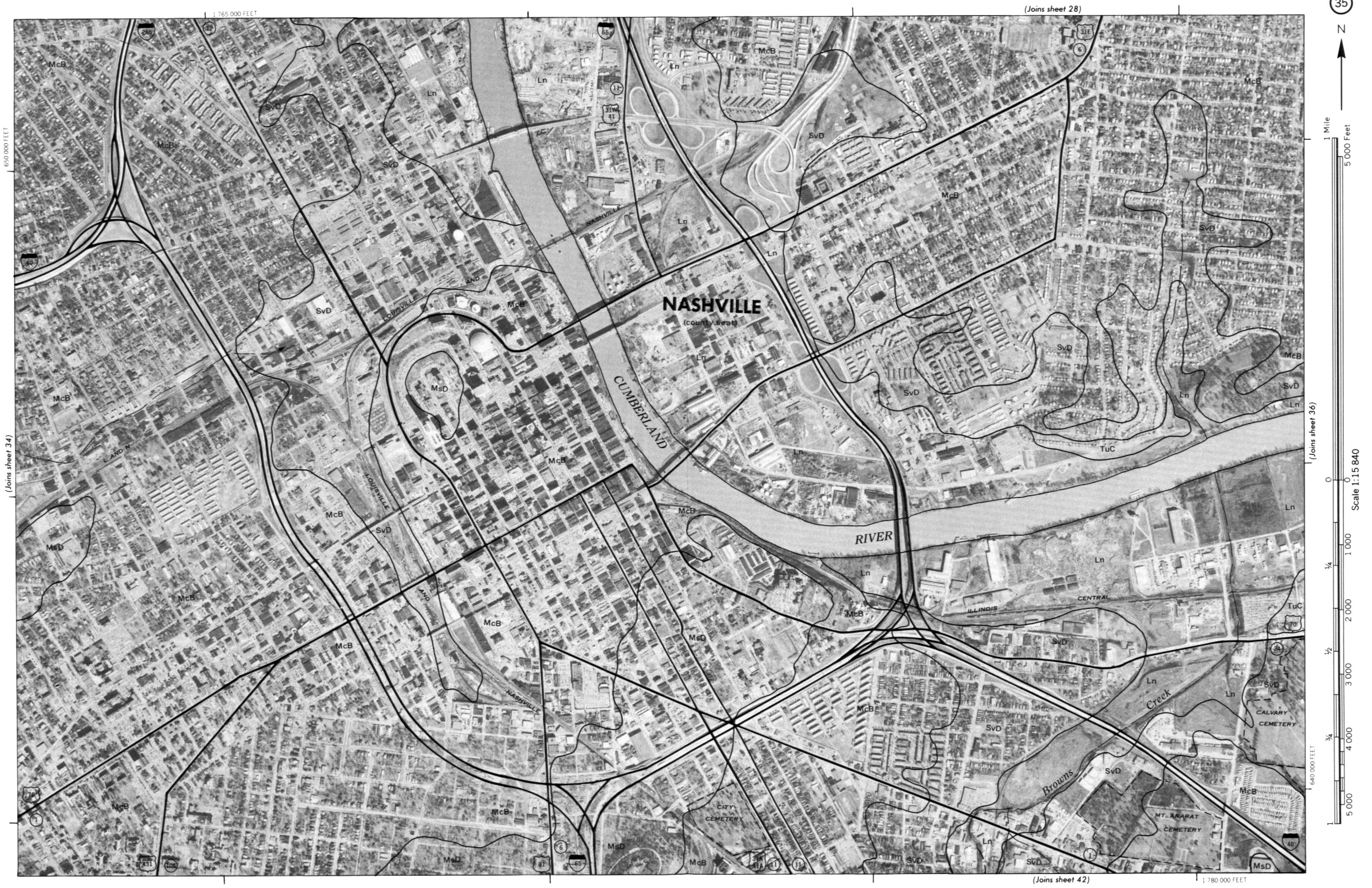
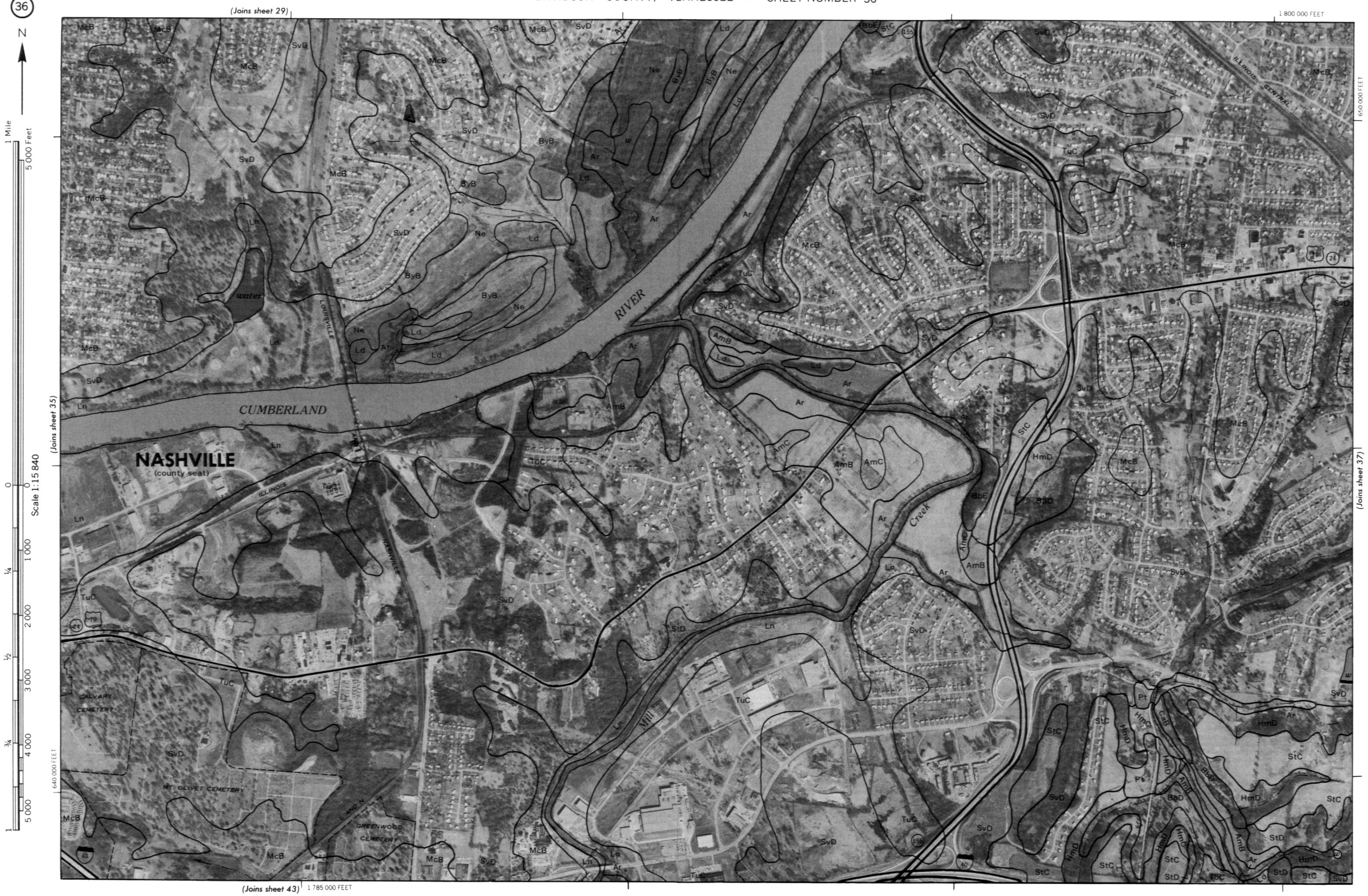
DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 34



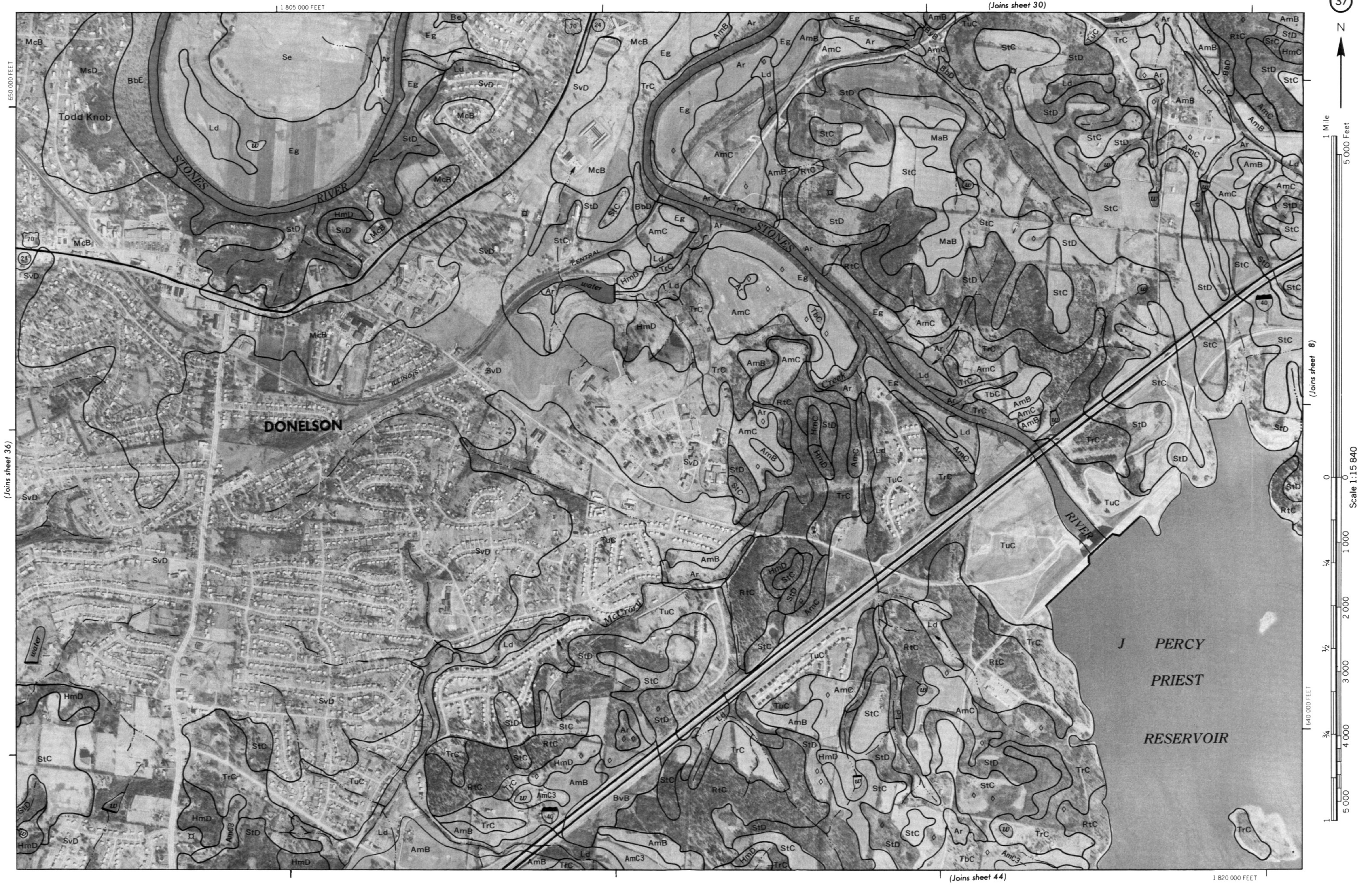
DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 35



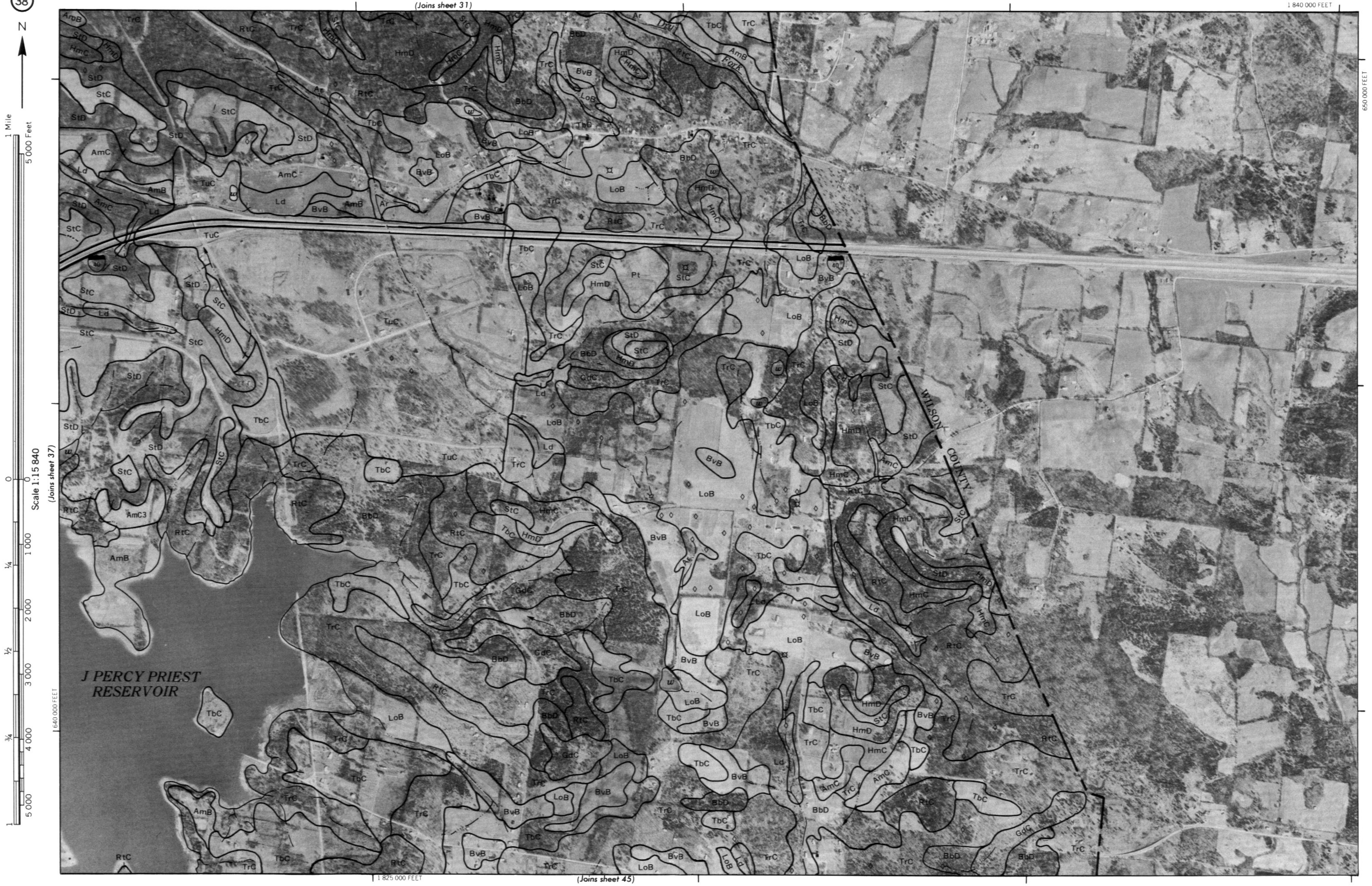
DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 36



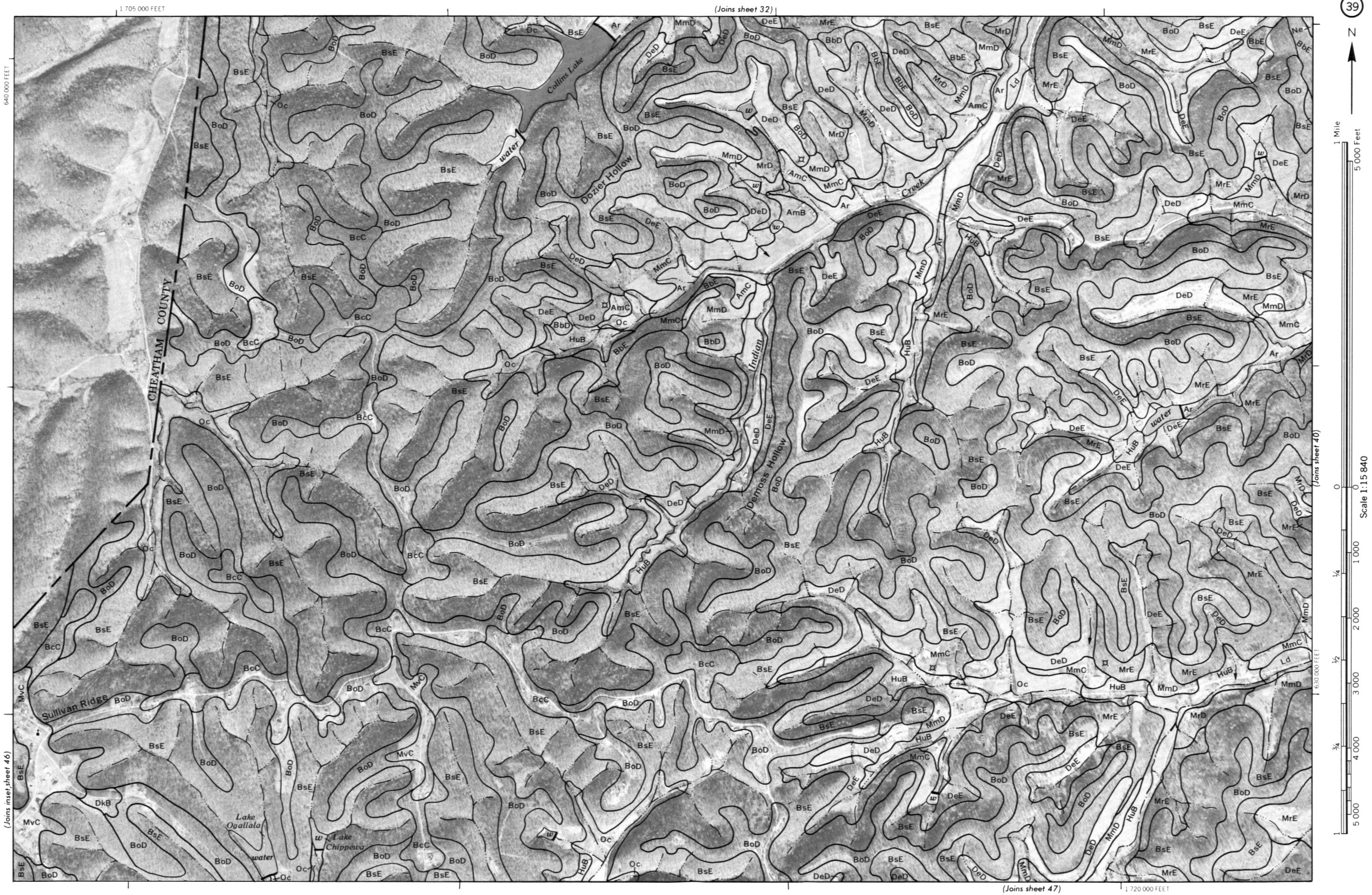
DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 37



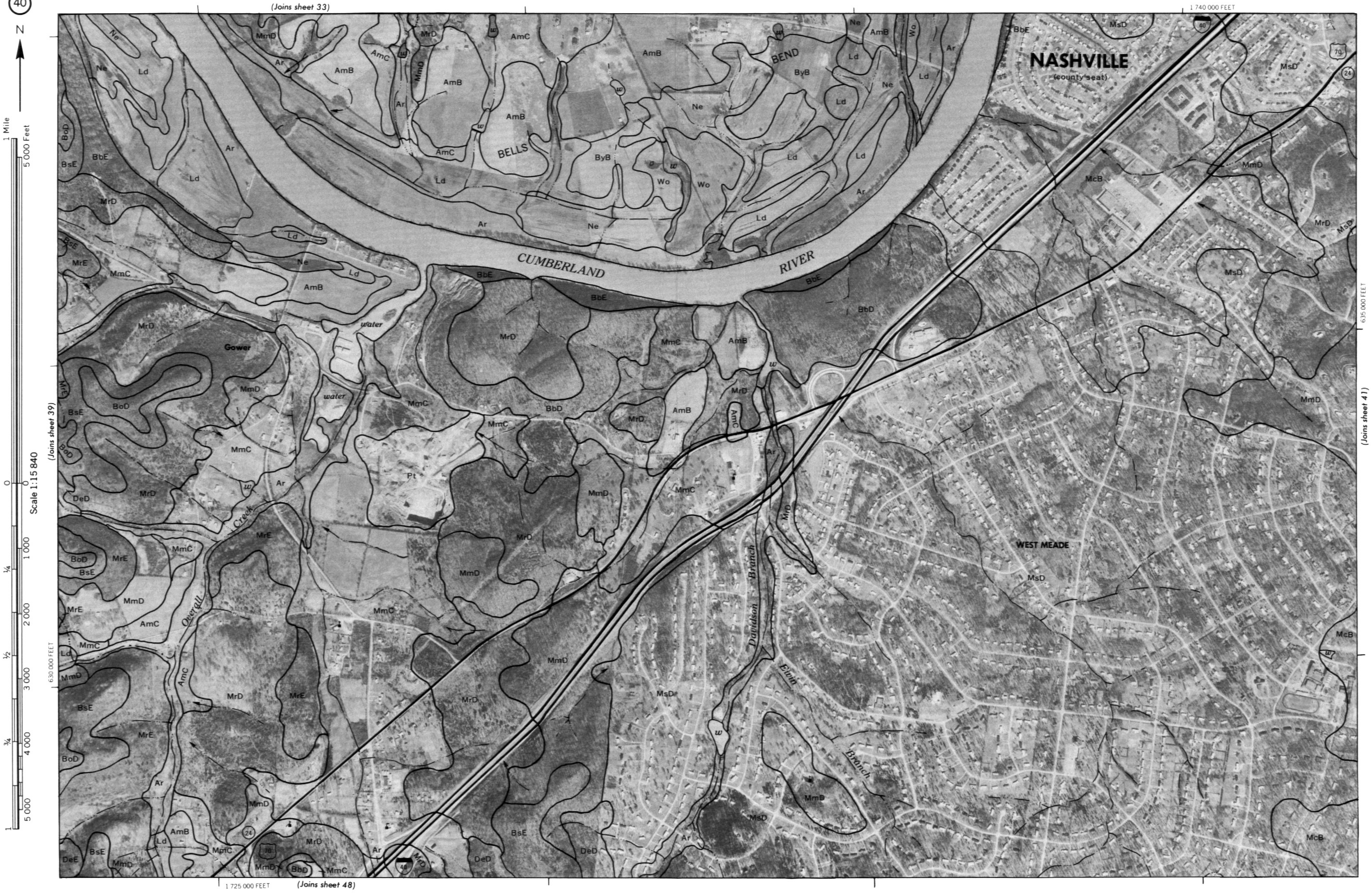
DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 38

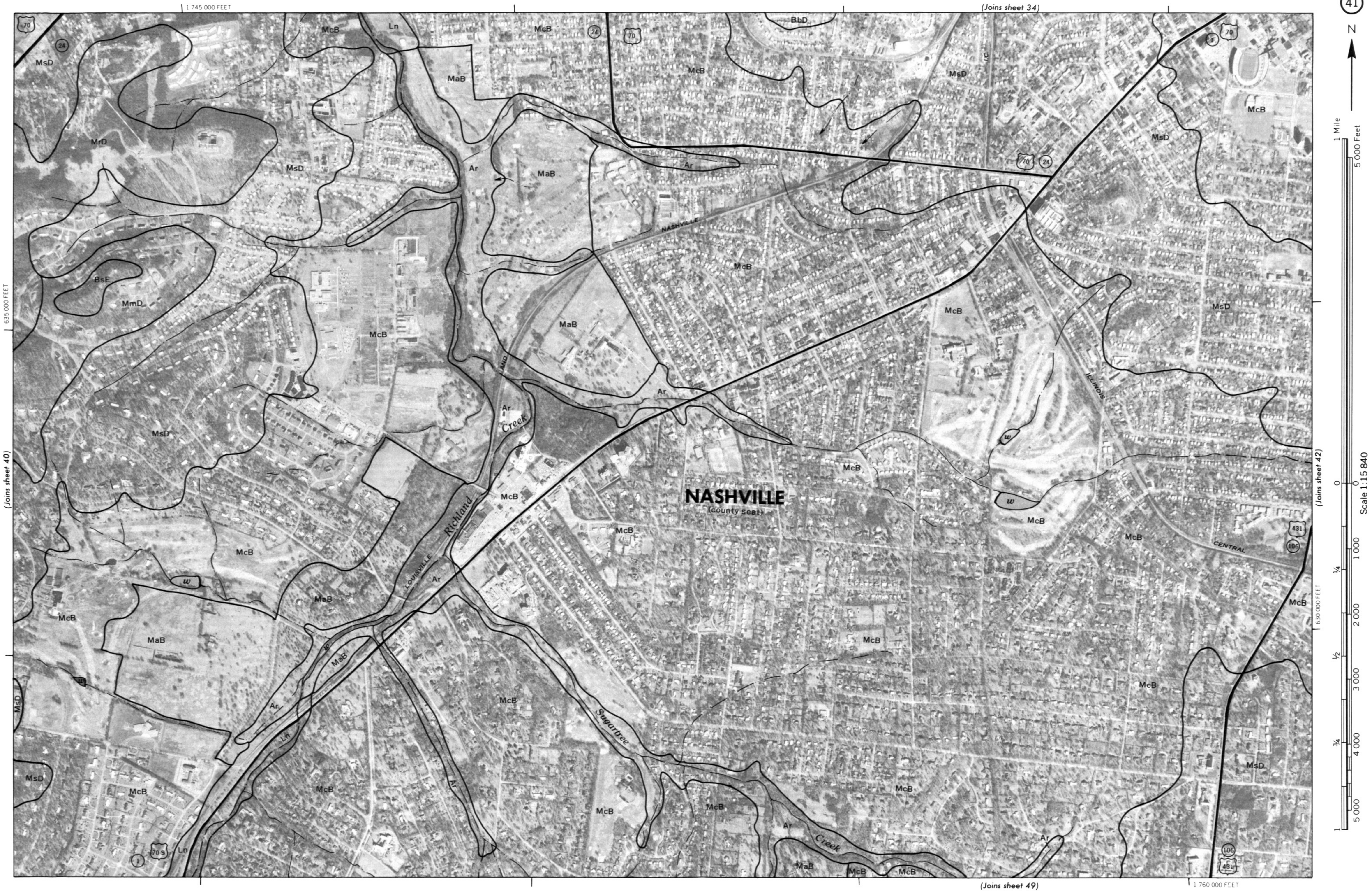


DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 39



DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 40




41
N
1 745 000 FEET
(Joins sheet 34)
(Joins sheet 40)
(Joins sheet 42)
(Joins sheet 49)
635 000 FEET
630 000 FEET
1 760 000 FEET
NASHVILLE
(county seat)
MsD
McB
Ln
MaB
BbD
MrD
Ar
BsE
MmD
w
Richland
Creek
Sugartree
Creek
LOUISVILLE
NASHVILLE
ILLINOIS
CENTRAL
70
24
70S
431
106
1
1 Mile
5 000 Feet
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2000
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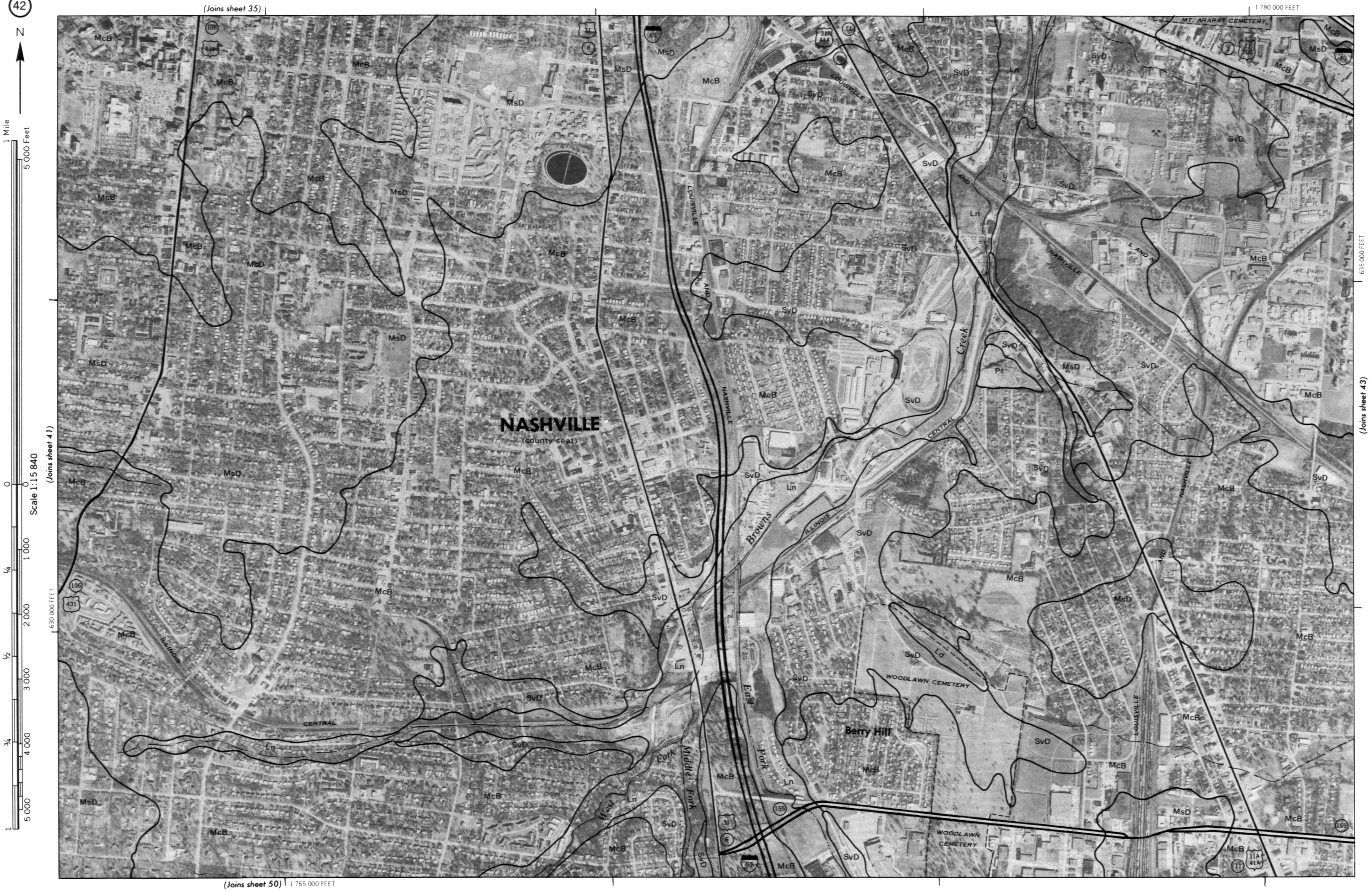
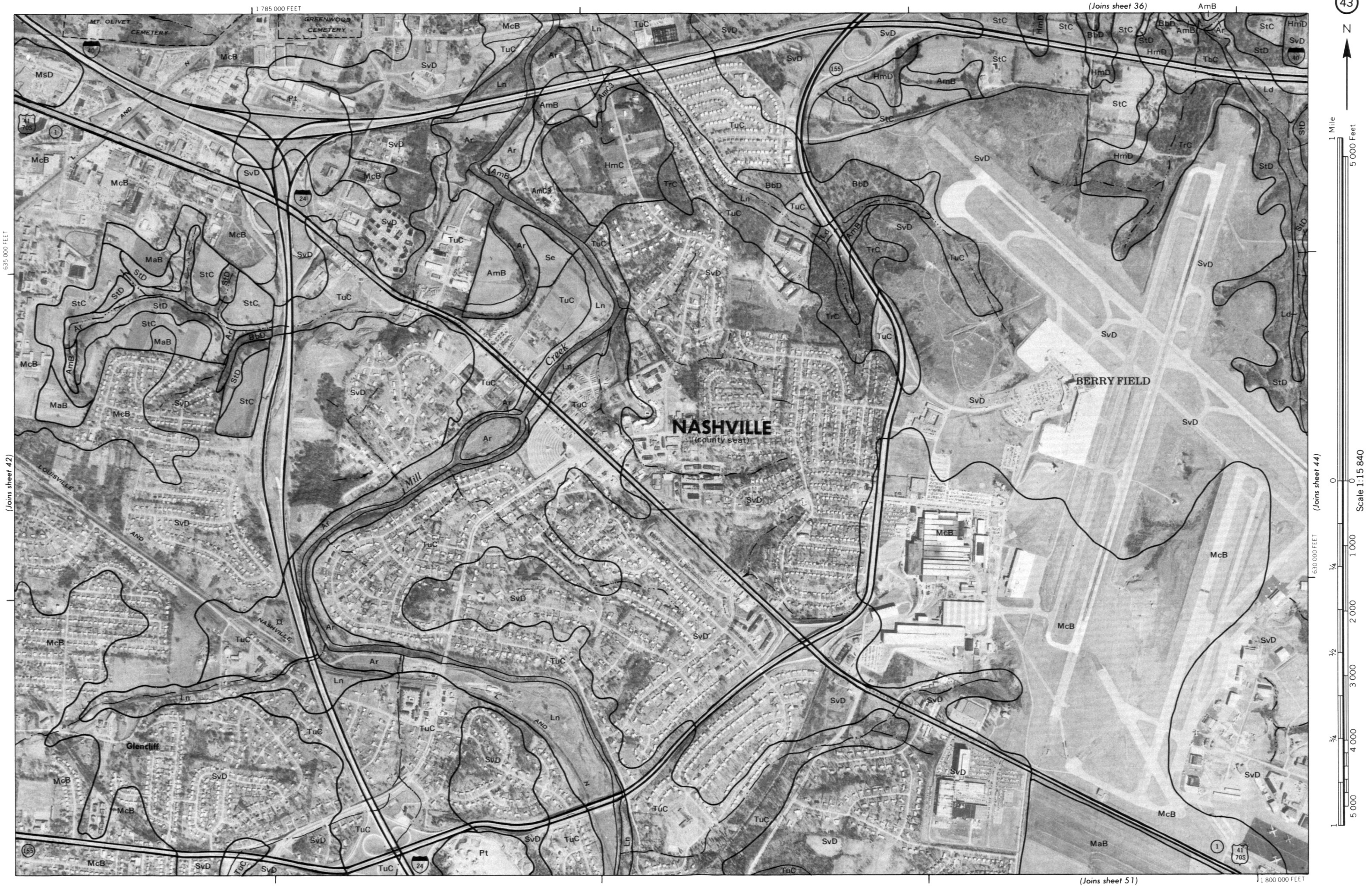
4000
5000
Scale 1:15 840

DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 42



DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 43

43



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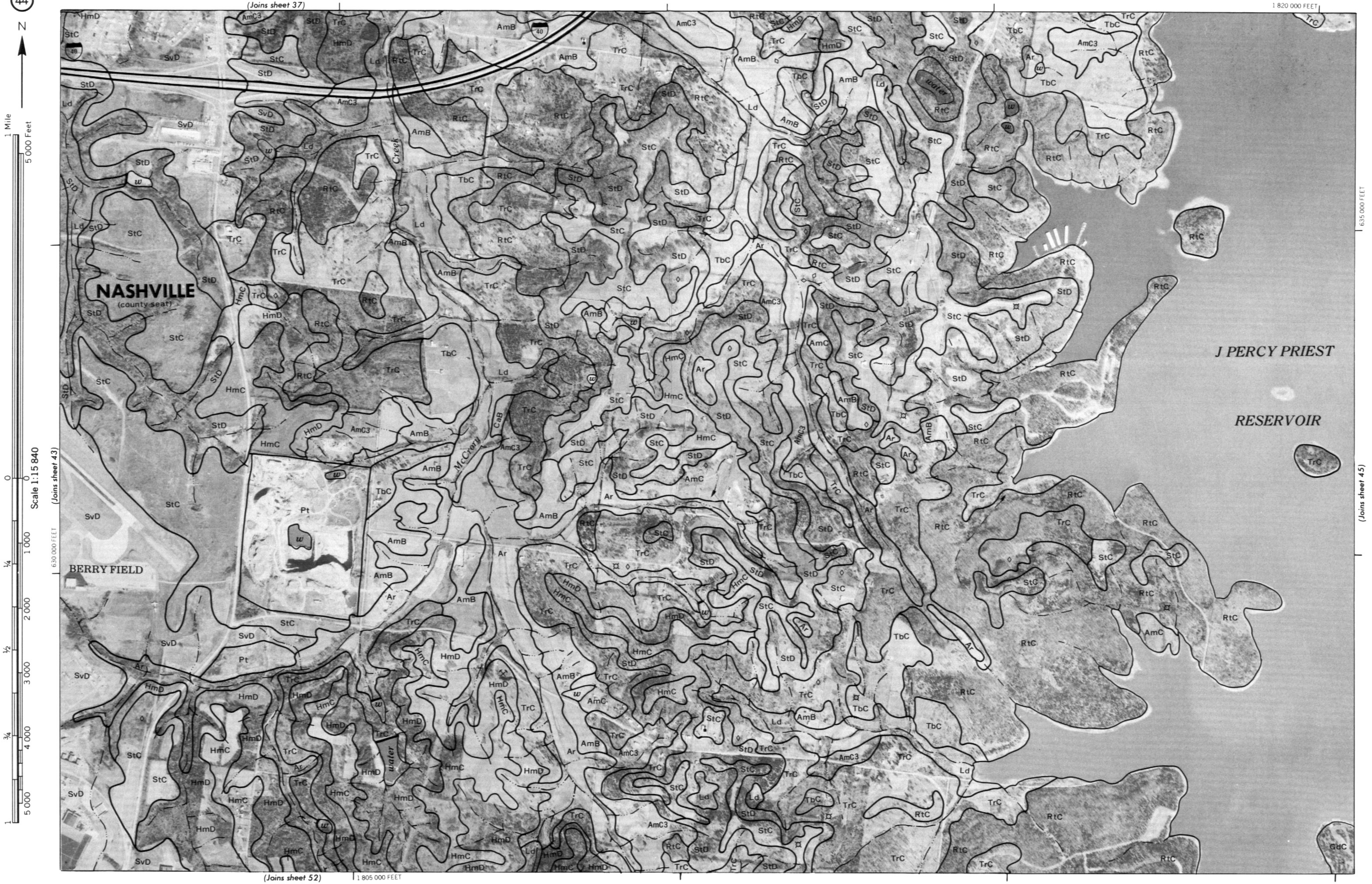
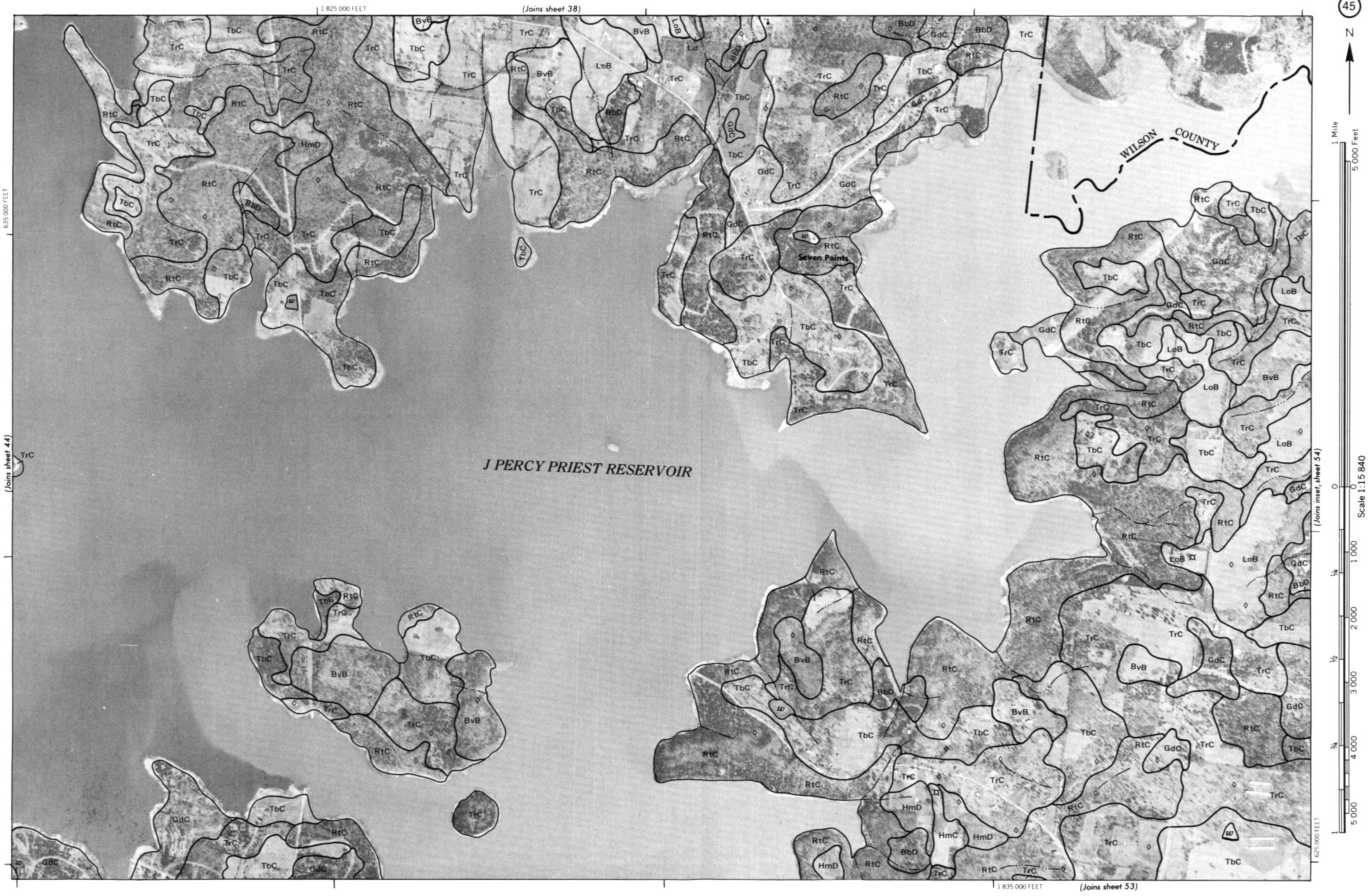
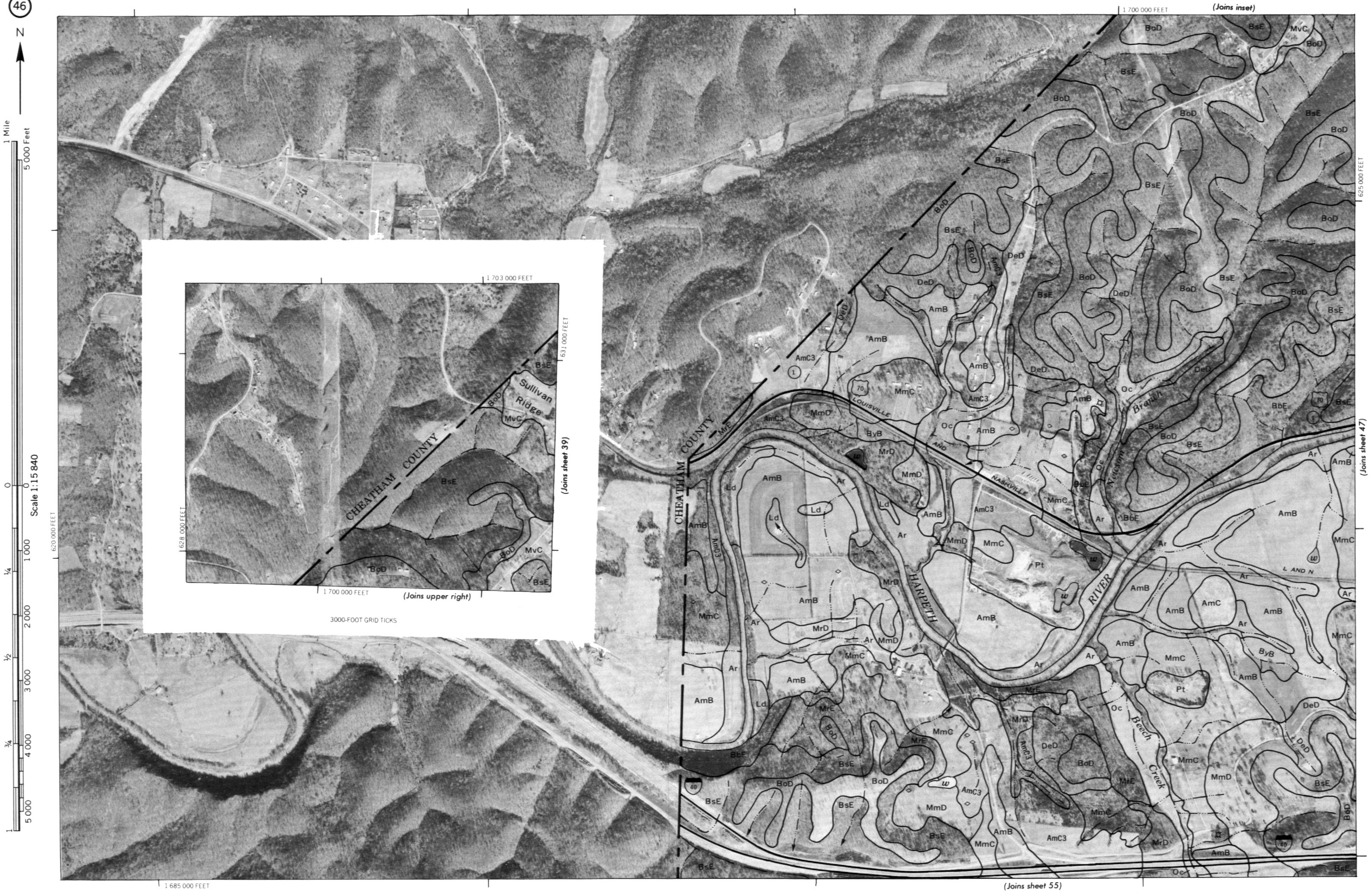
DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 44



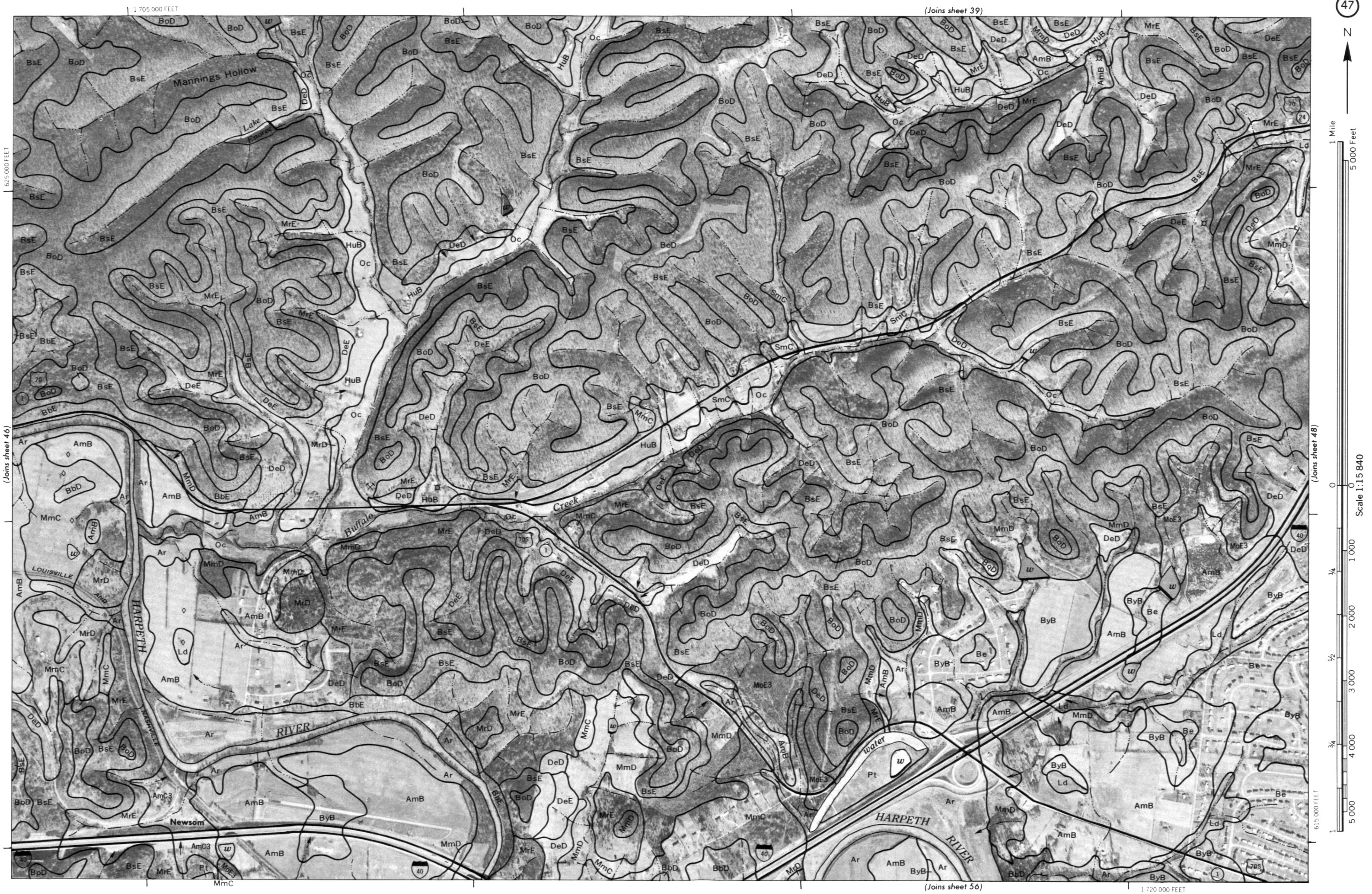
DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 45



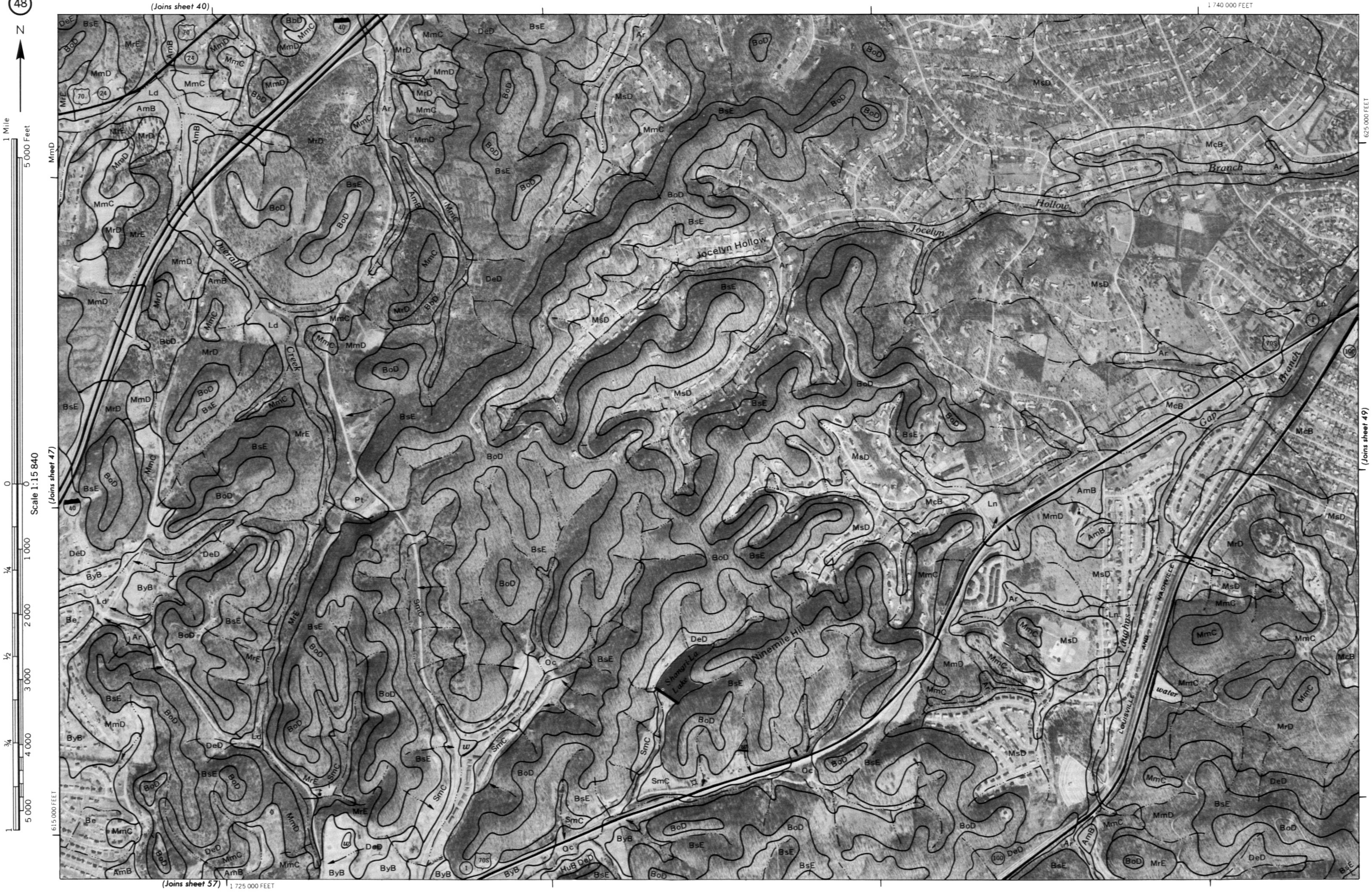
DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 46



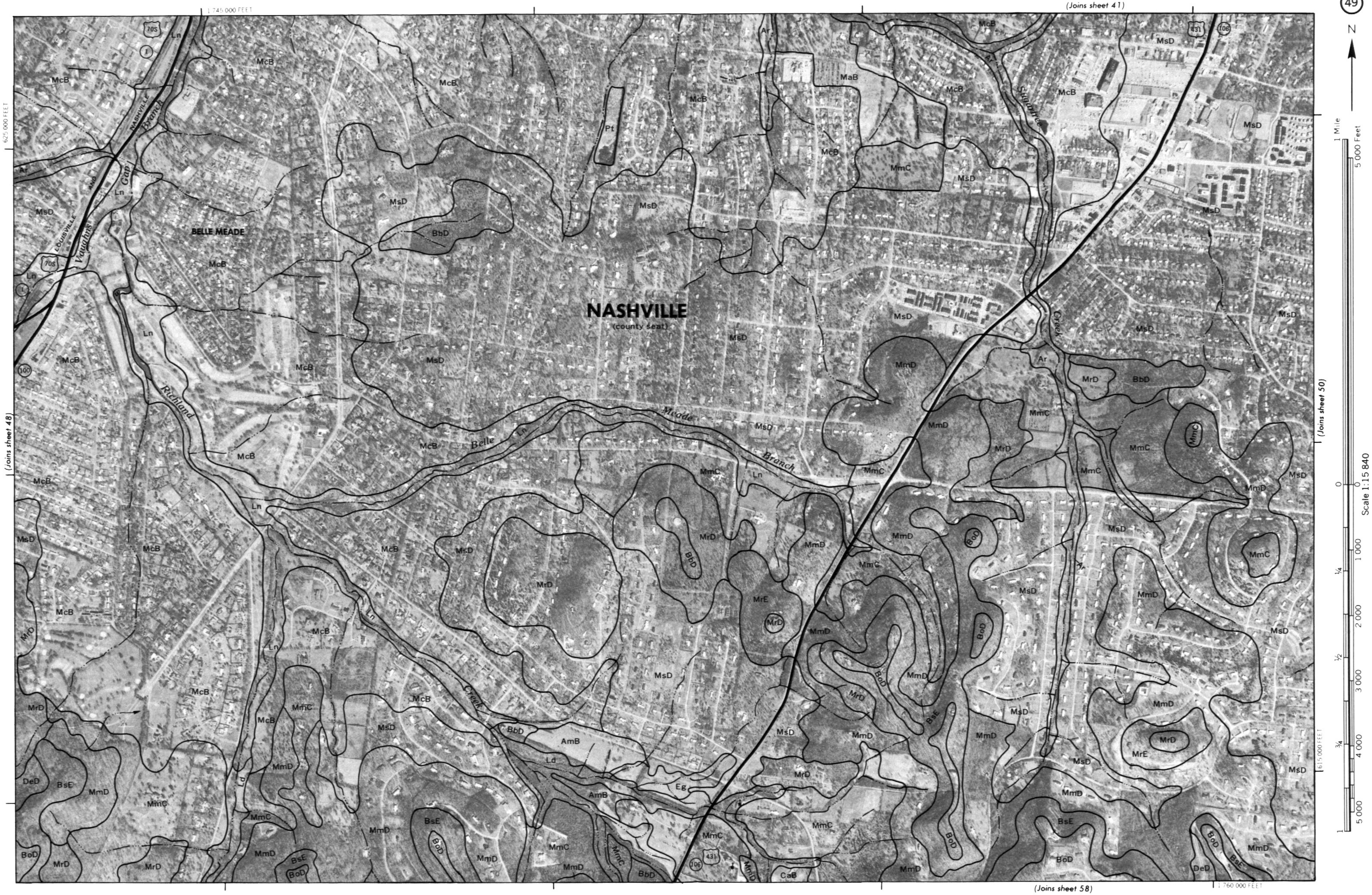
DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 47

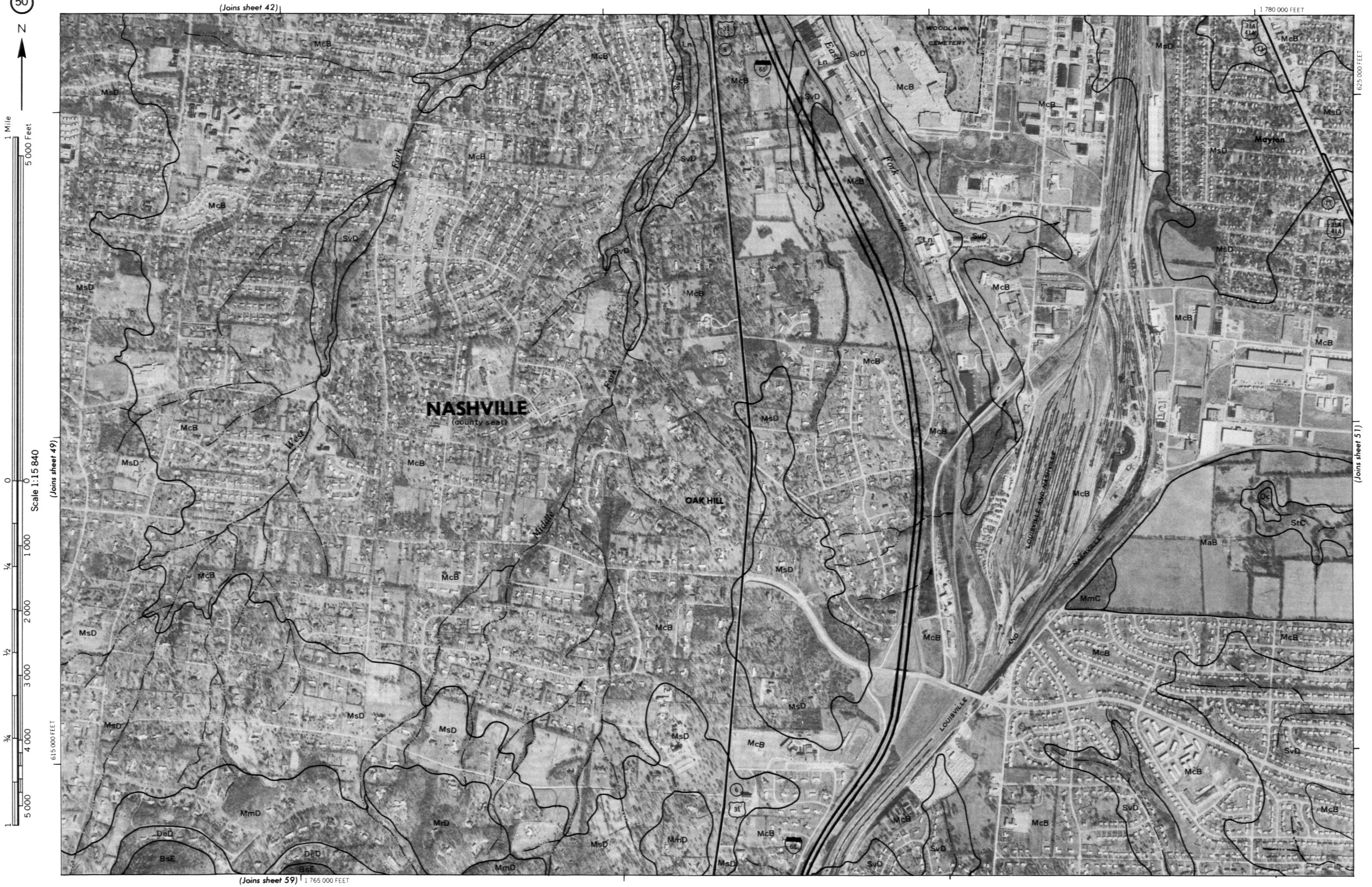


DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 48



DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 49




(Joins sheet 42)
(Joins sheet 49)
(Joins sheet 51)
(Joins sheet 59)
1 780 000 FEET
625 000 FEET
615 000 FEET
1 765 000 FEET
N
1 Mile
5 000 Feet
Scale 1:15 840
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1 000
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3 000
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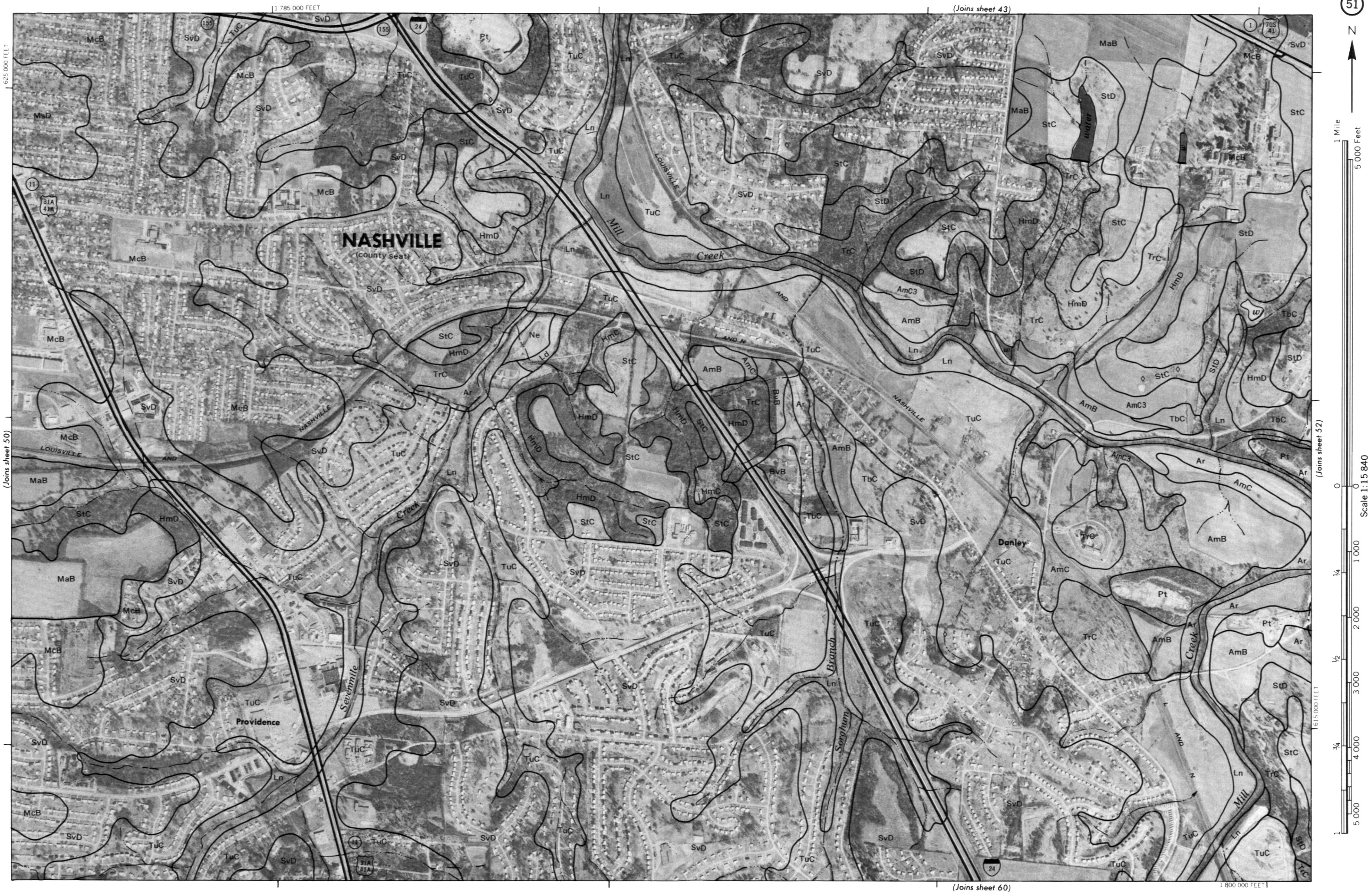
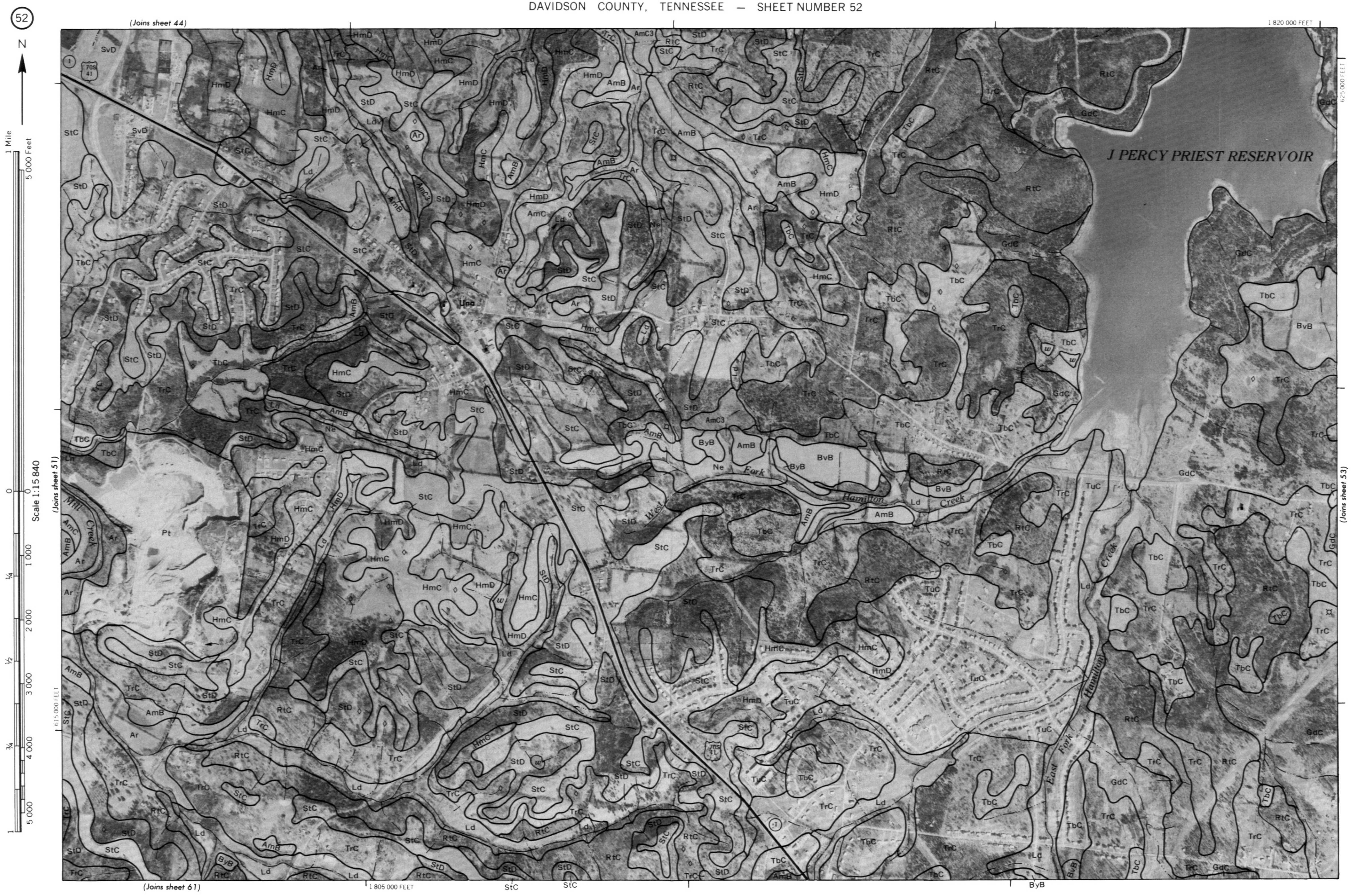
1
NASHVILLE
(county seat)
OAK HILL
Mayton
WOODLAWN CEMETERY
West Fork
Middle Fork
East Fork
LOUISVILLE AND NASHVILLE
LOUISVILLE
31
6
65
31A
41A
11
McB
MsD
SvD
Ln
MaB
MmC
StC
Oc
MmD
MrD
DeD
BsE

DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 51

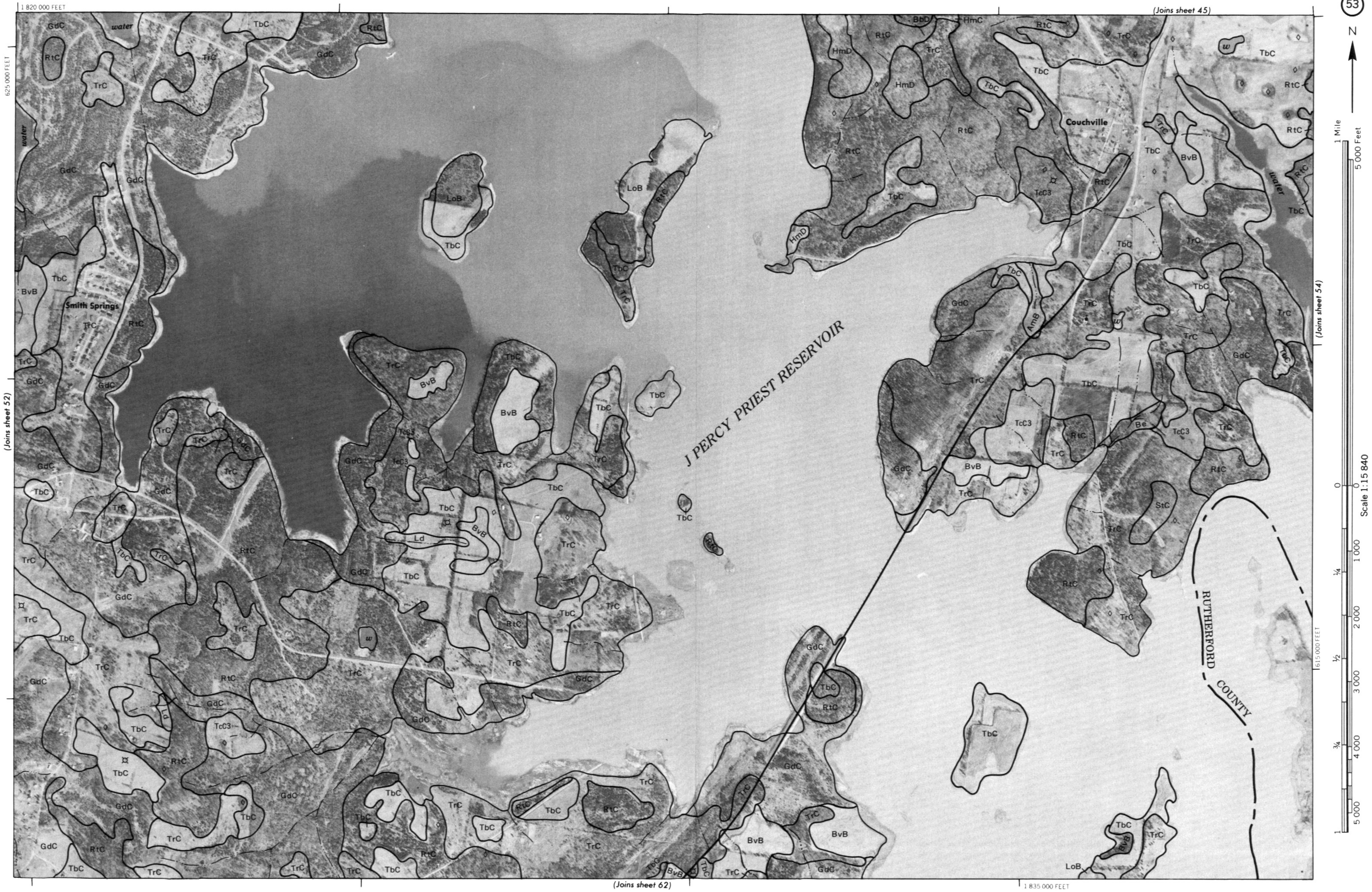


DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 52

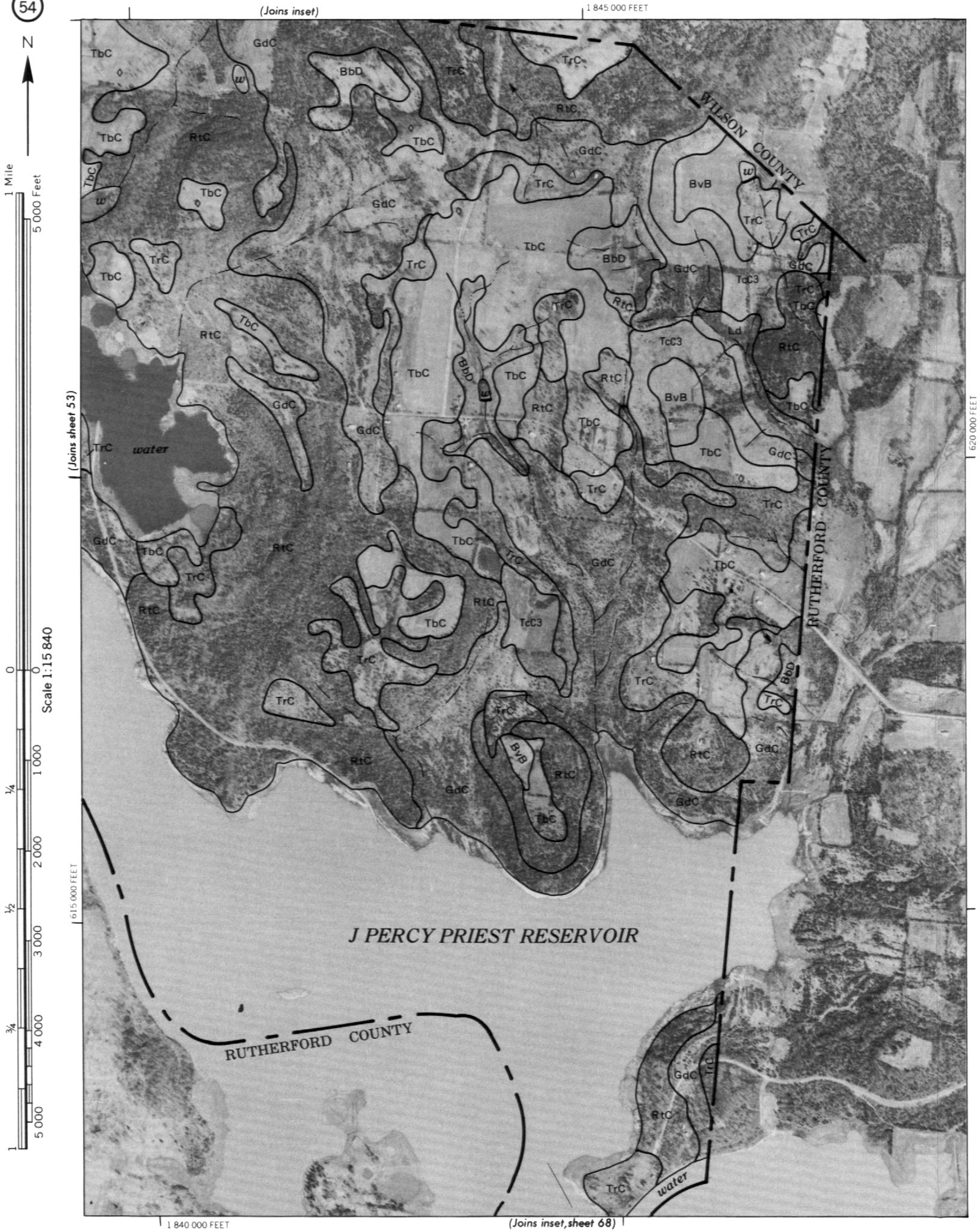


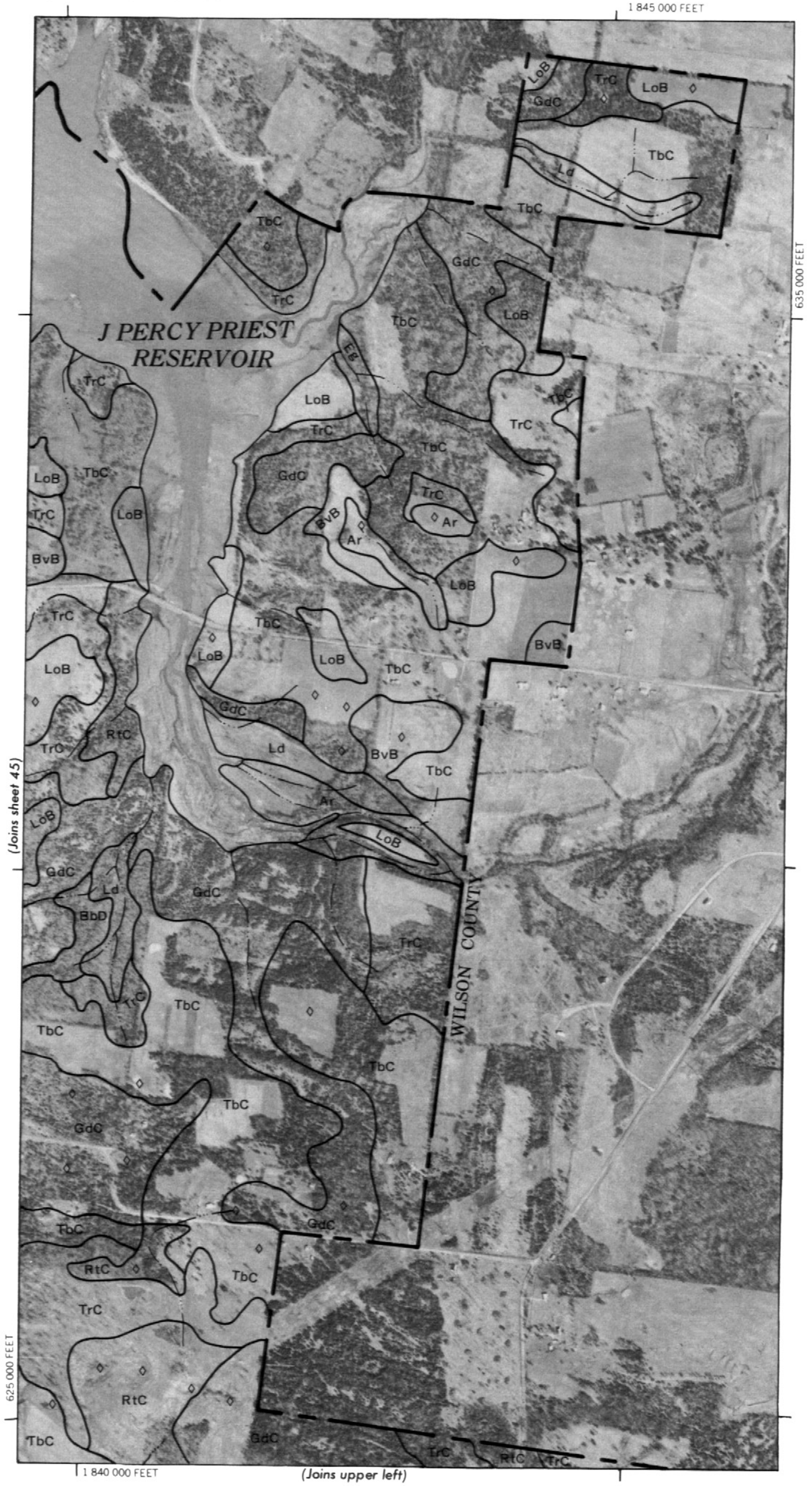
DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 53

53

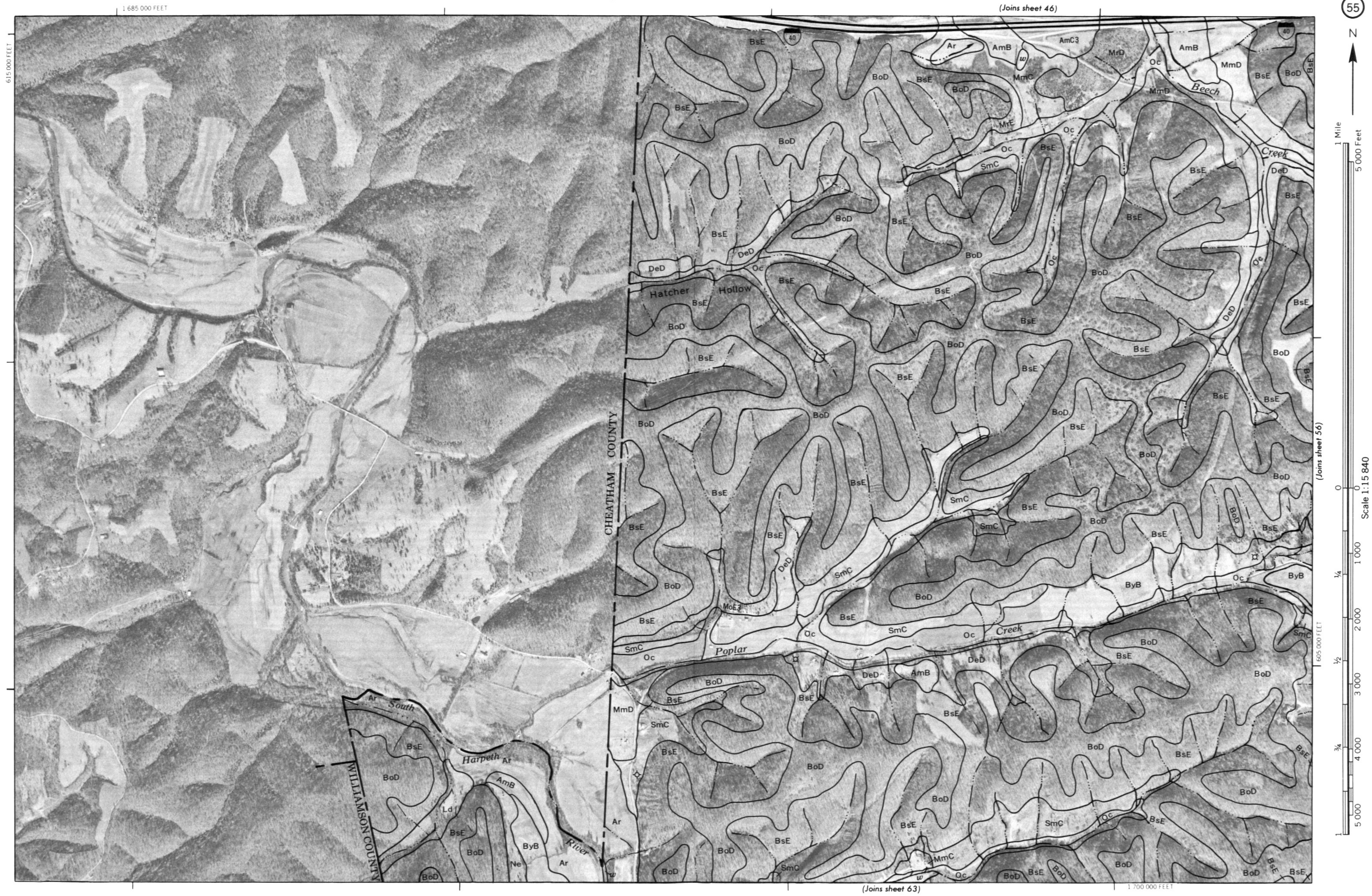


DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 54

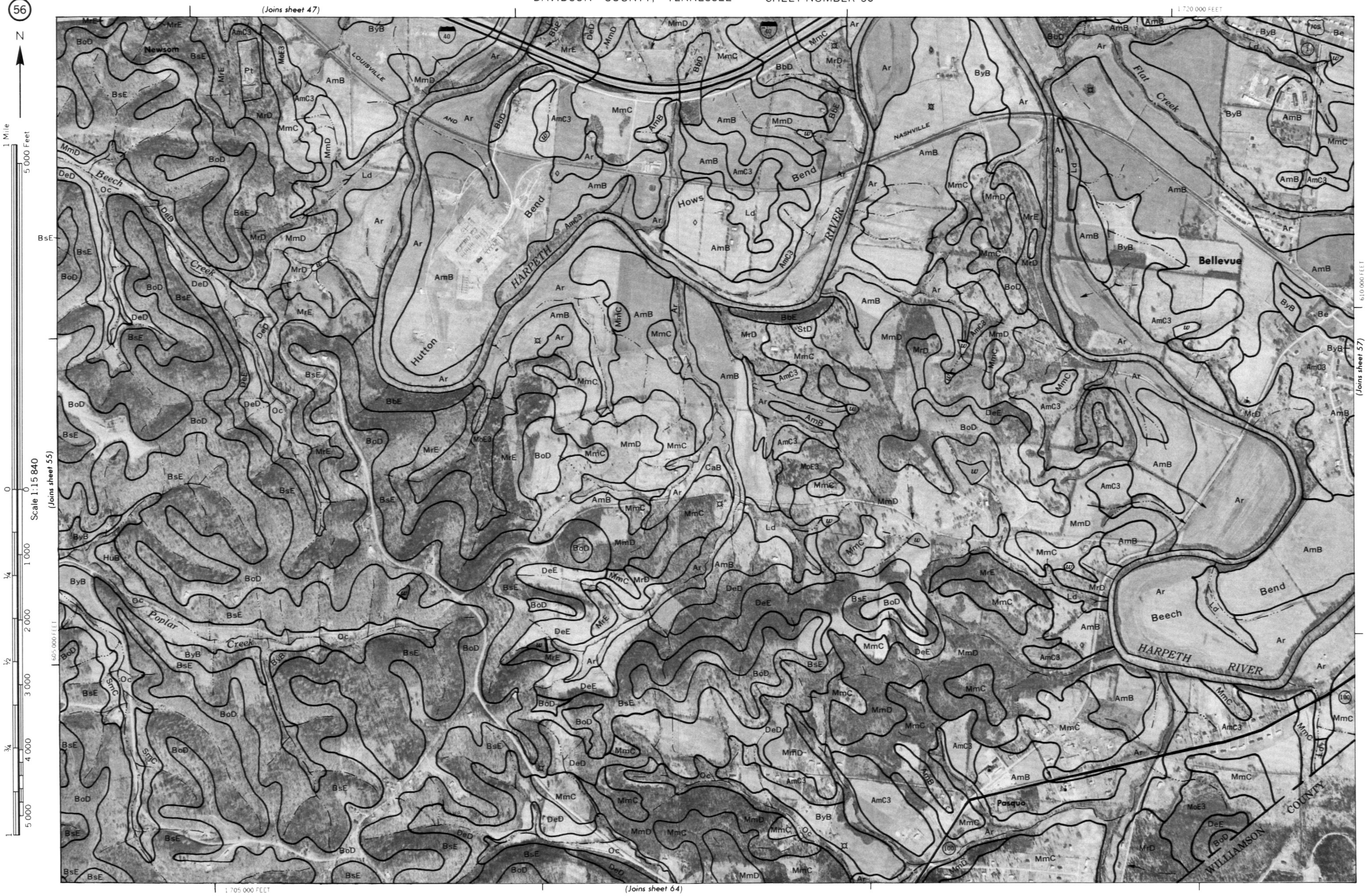


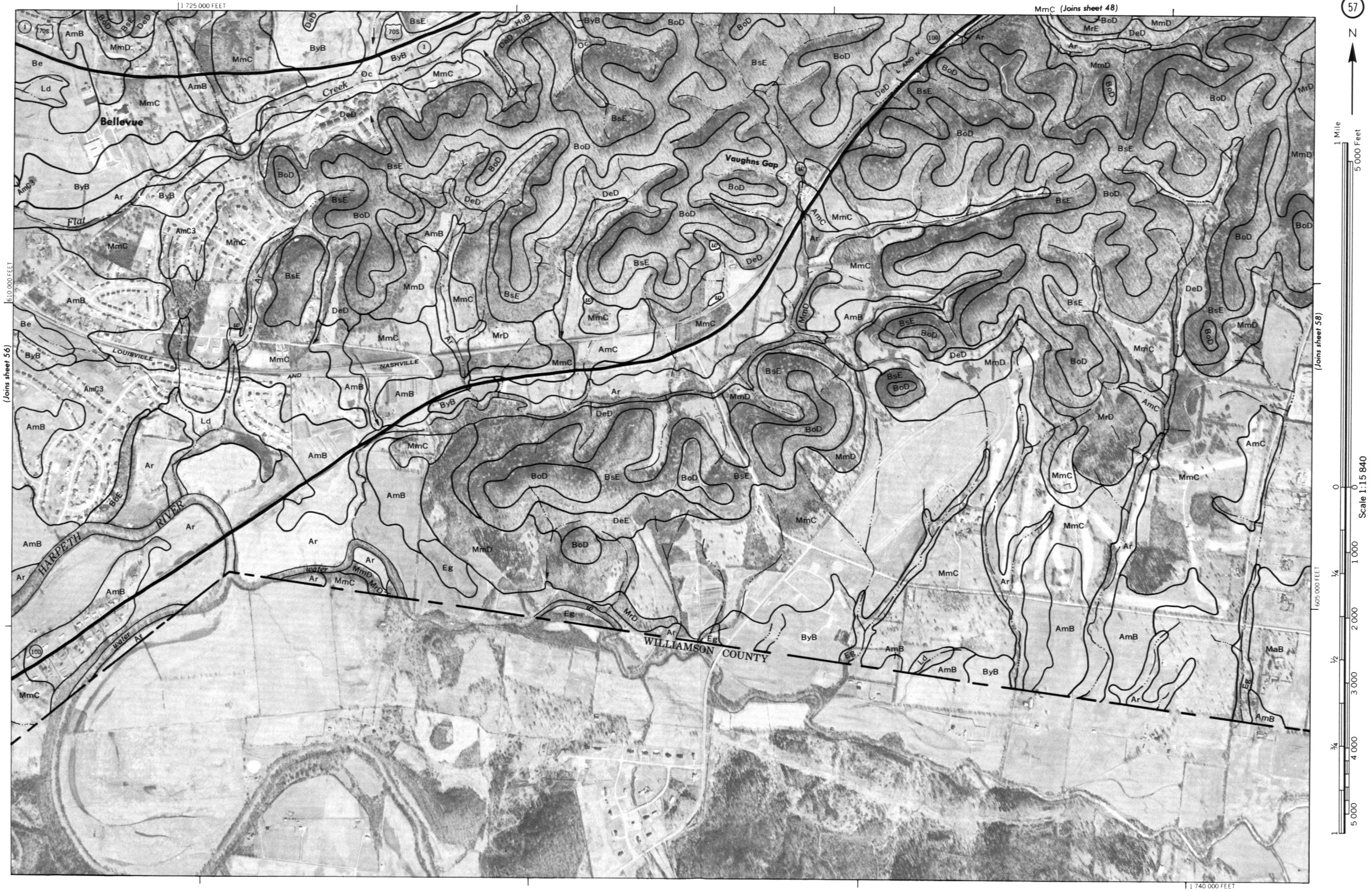


DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 55



DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 56




1 725 000 FEET
MmC (Joins sheet 48)
(Joins sheet 56)
(Joins sheet 58)
610 000 FEET
605 000 FEET
1 740 000 FEET
Bellevue
Vaughns Gap
Flat Creek
HARPETH RIVER
LOUISVILLE AND NASHVILLE
L AND N
WILLIAMSON COUNTY
water
N
1 Mile
5 000 Feet
Scale 1:15 840
0
1/4
1/2
3/4
1
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4 000
5 000
BoD
BsE
DeD
DeE
MmC
MmD
MrD
MrE
AmB
AmC
AmC3
Ar
Be
ByB
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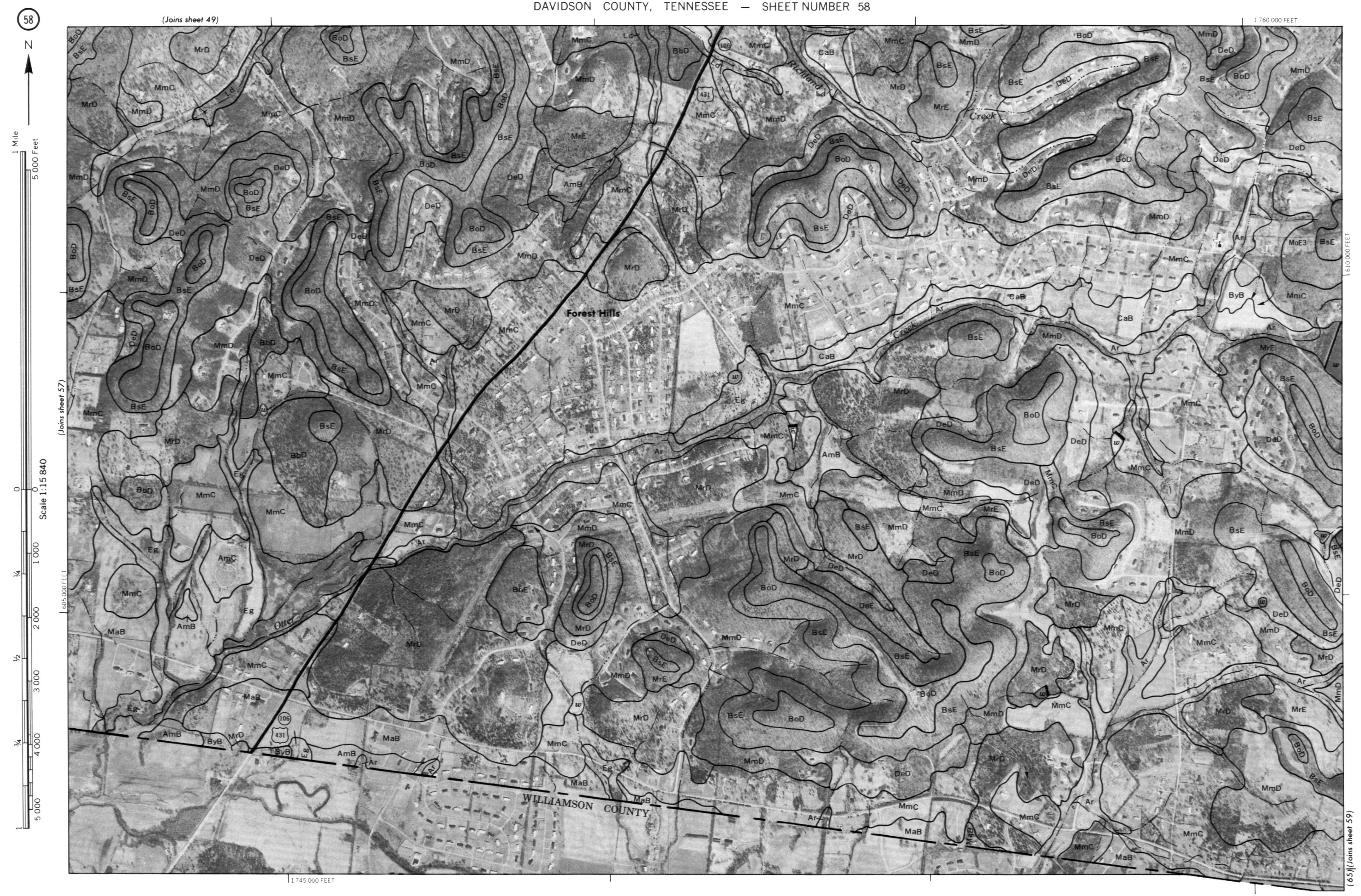
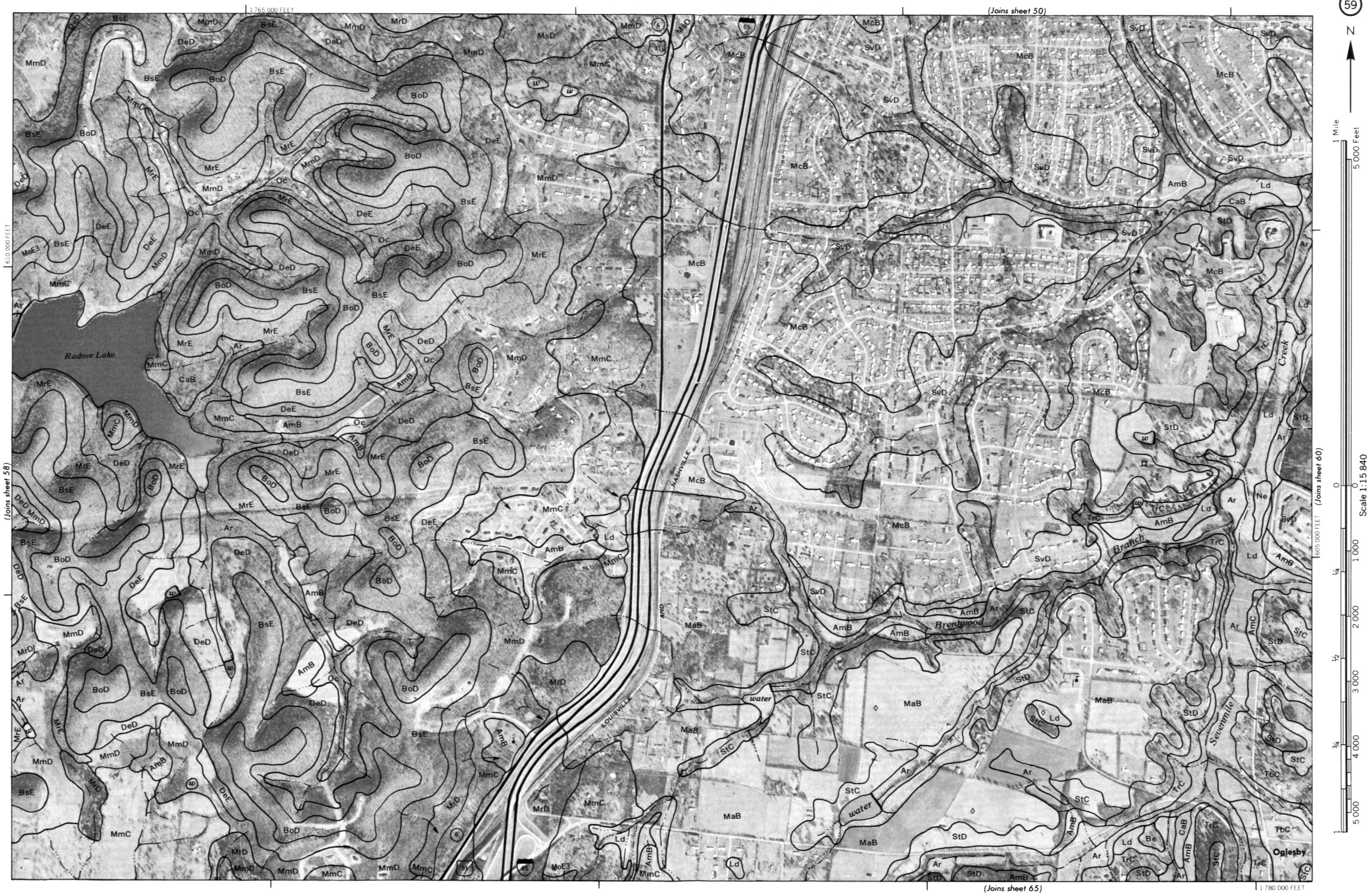
Eg
Oc
HuB
MaB
w
70S
100

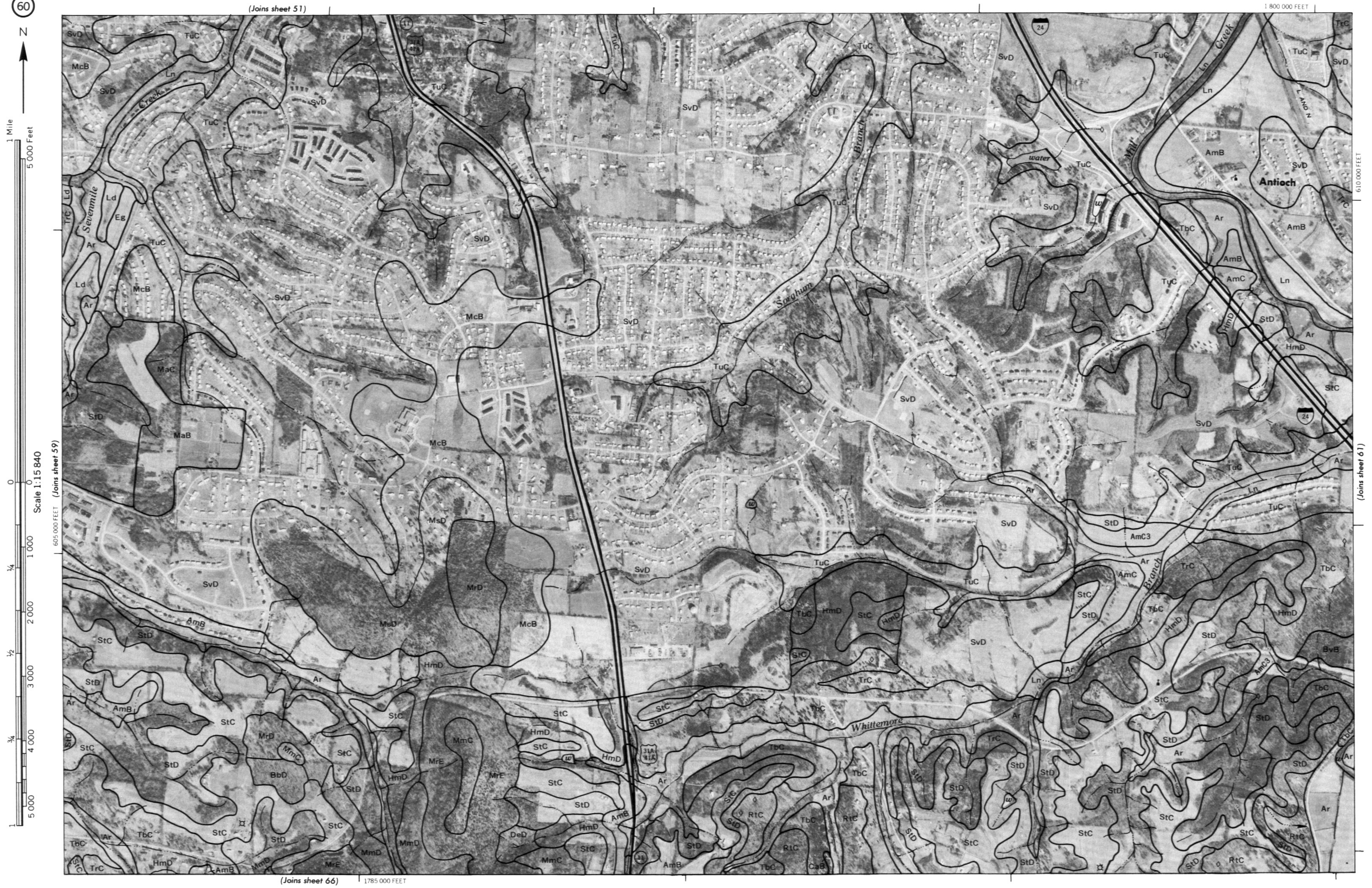
DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 58



DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 59

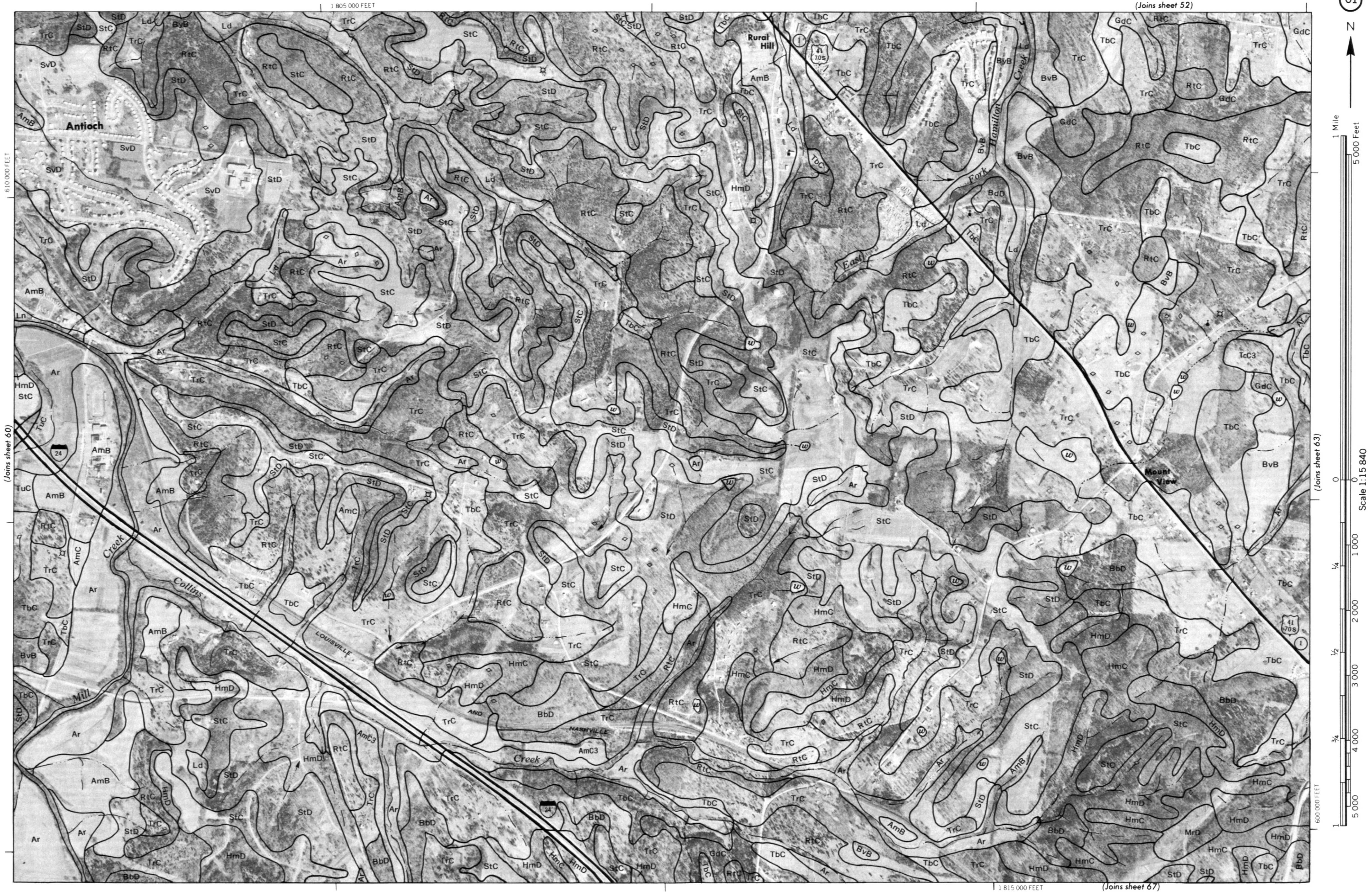


DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 60

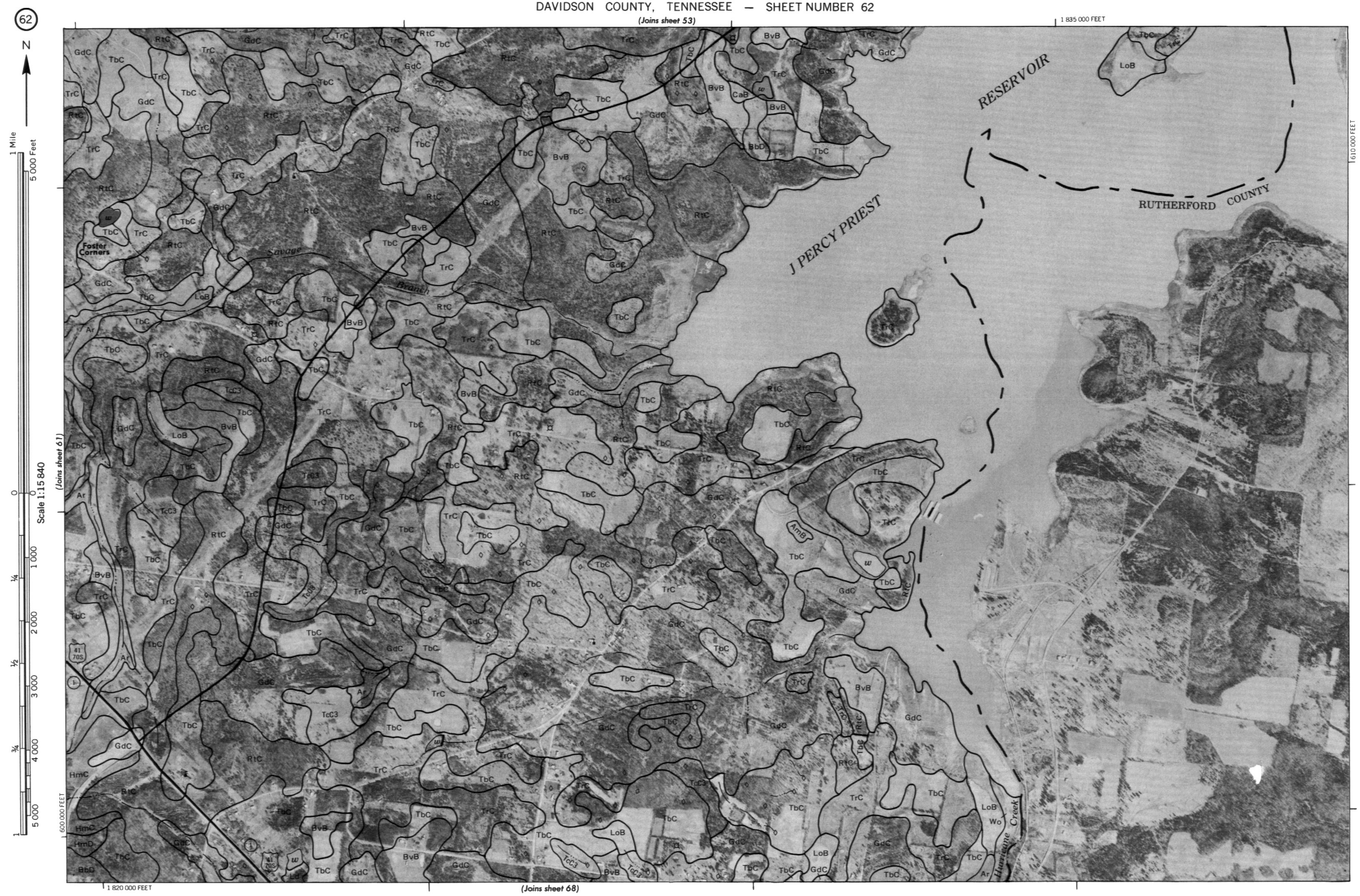


DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 61

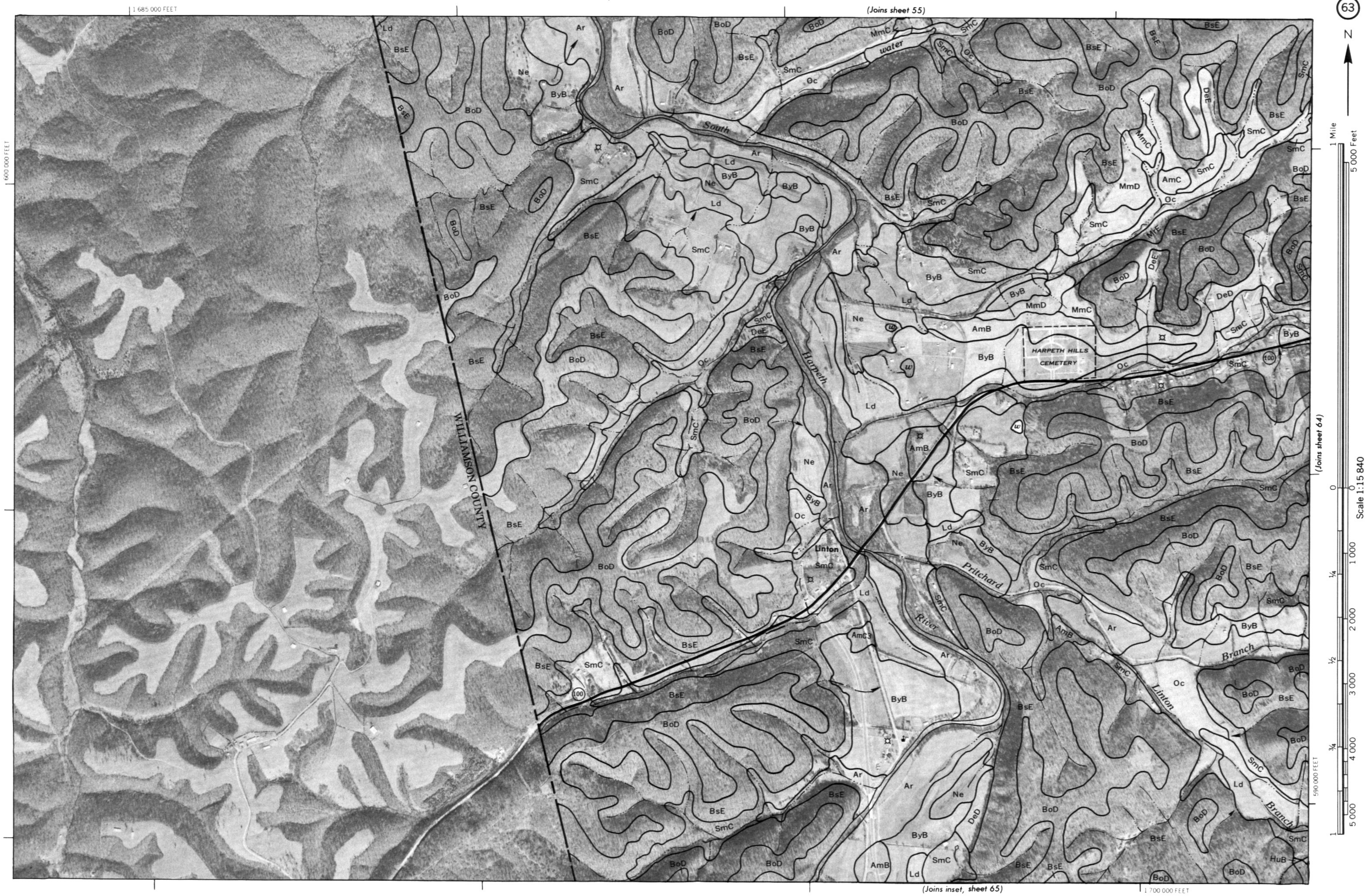
(61)



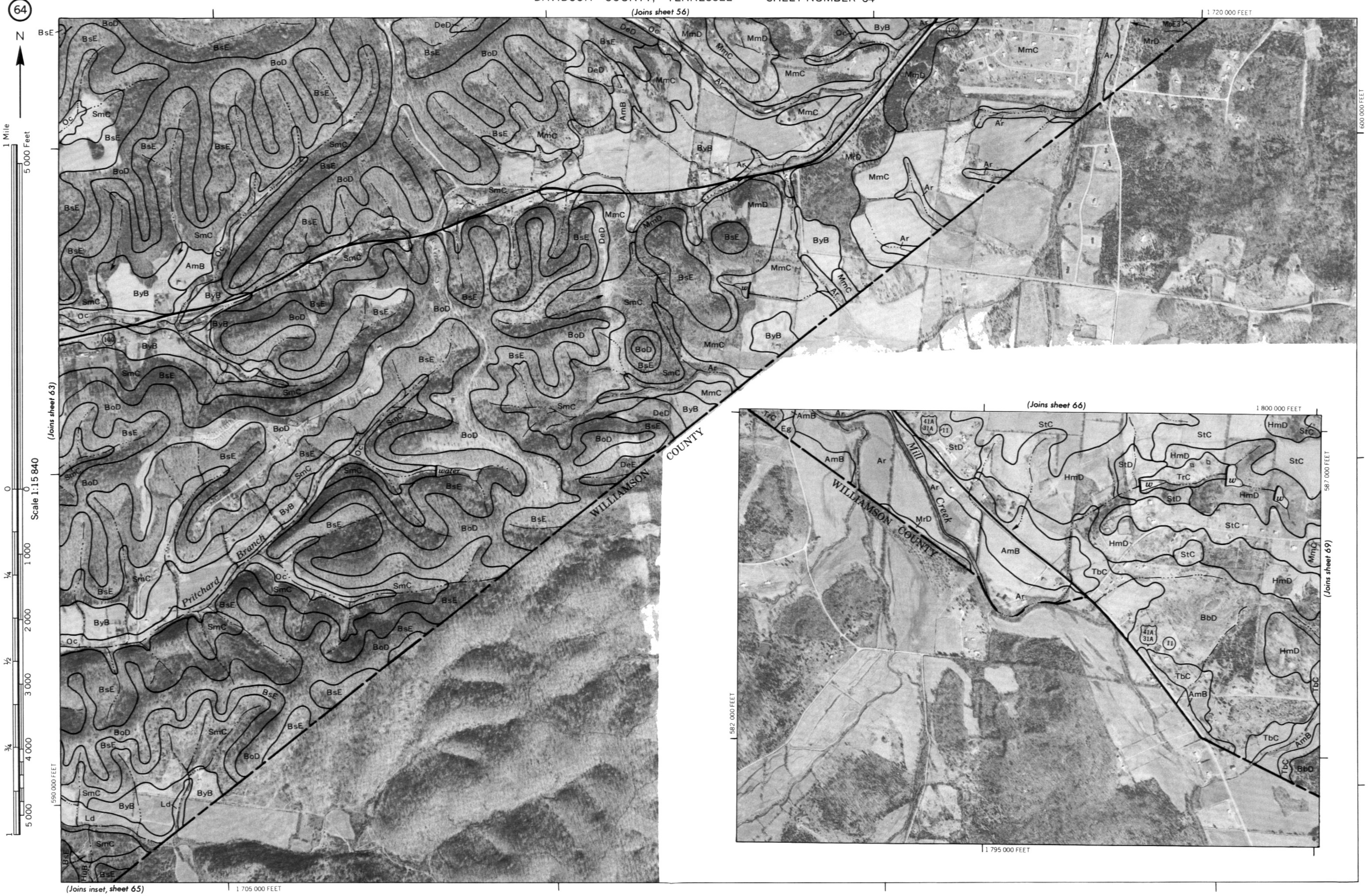
DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 62



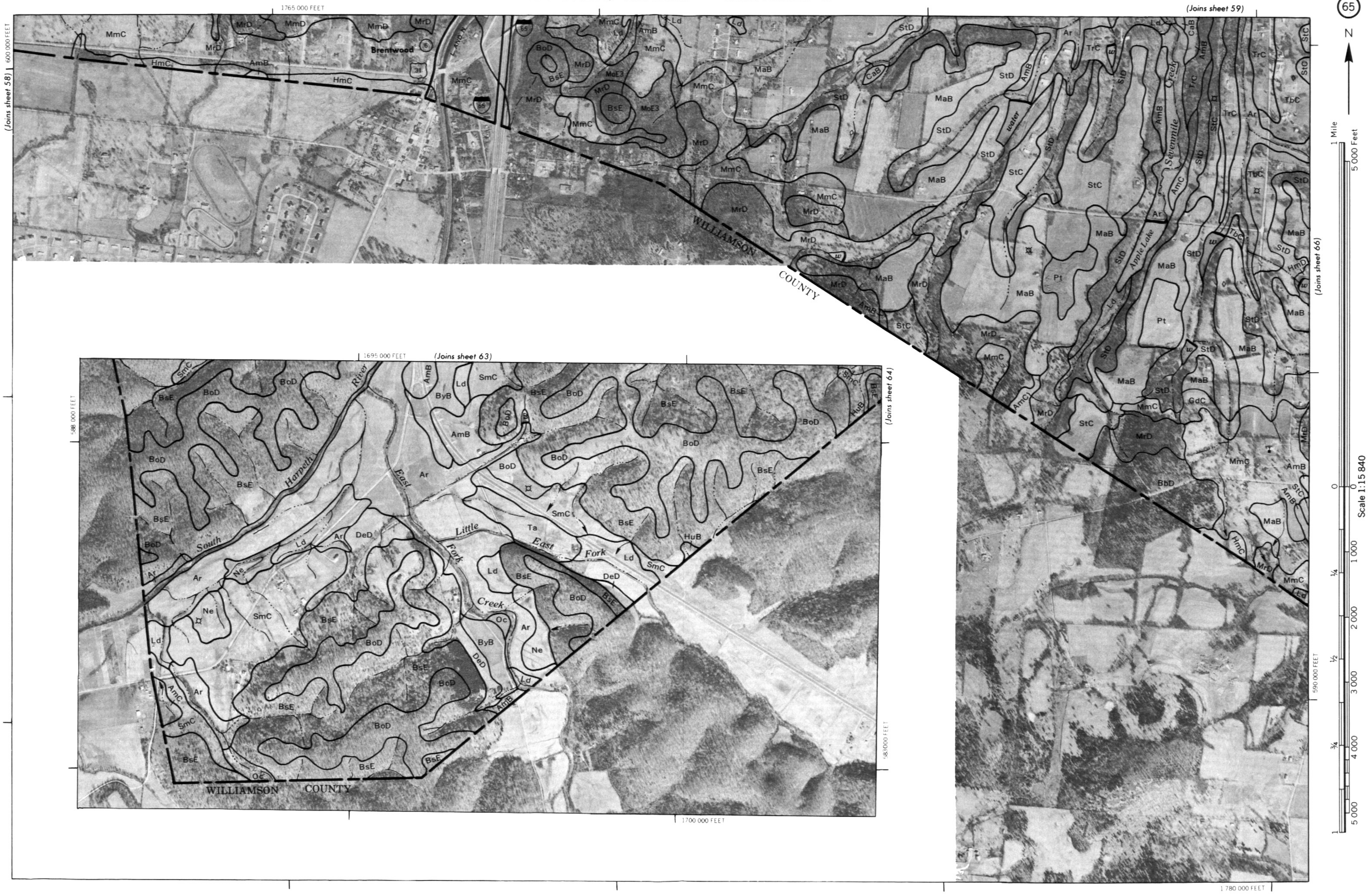
DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 63

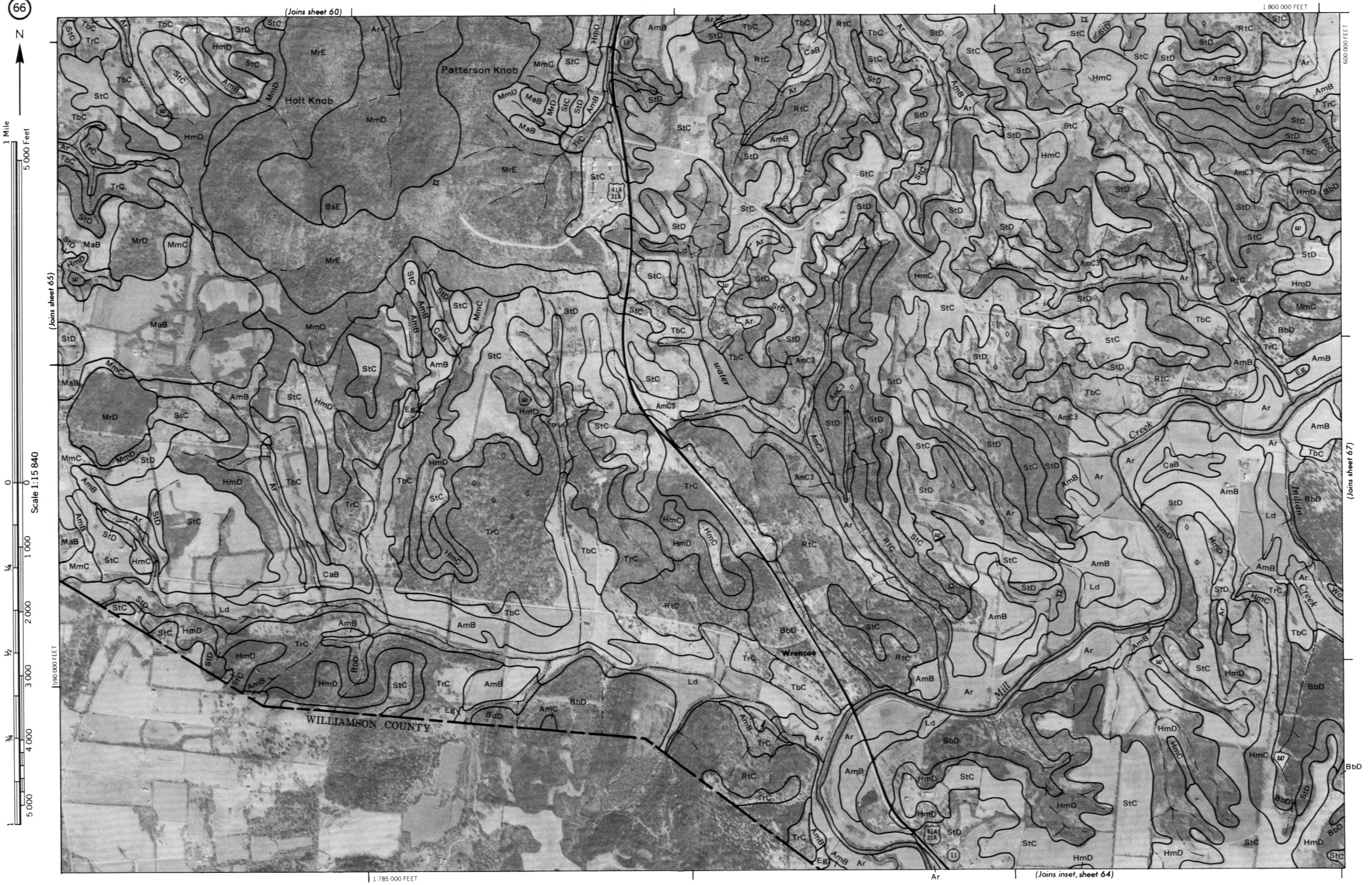


DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 64



DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 65




(Joins sheet 60)
1 800 000 FEET
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1 Mile
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Scale 1:15 840
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5 000
¼
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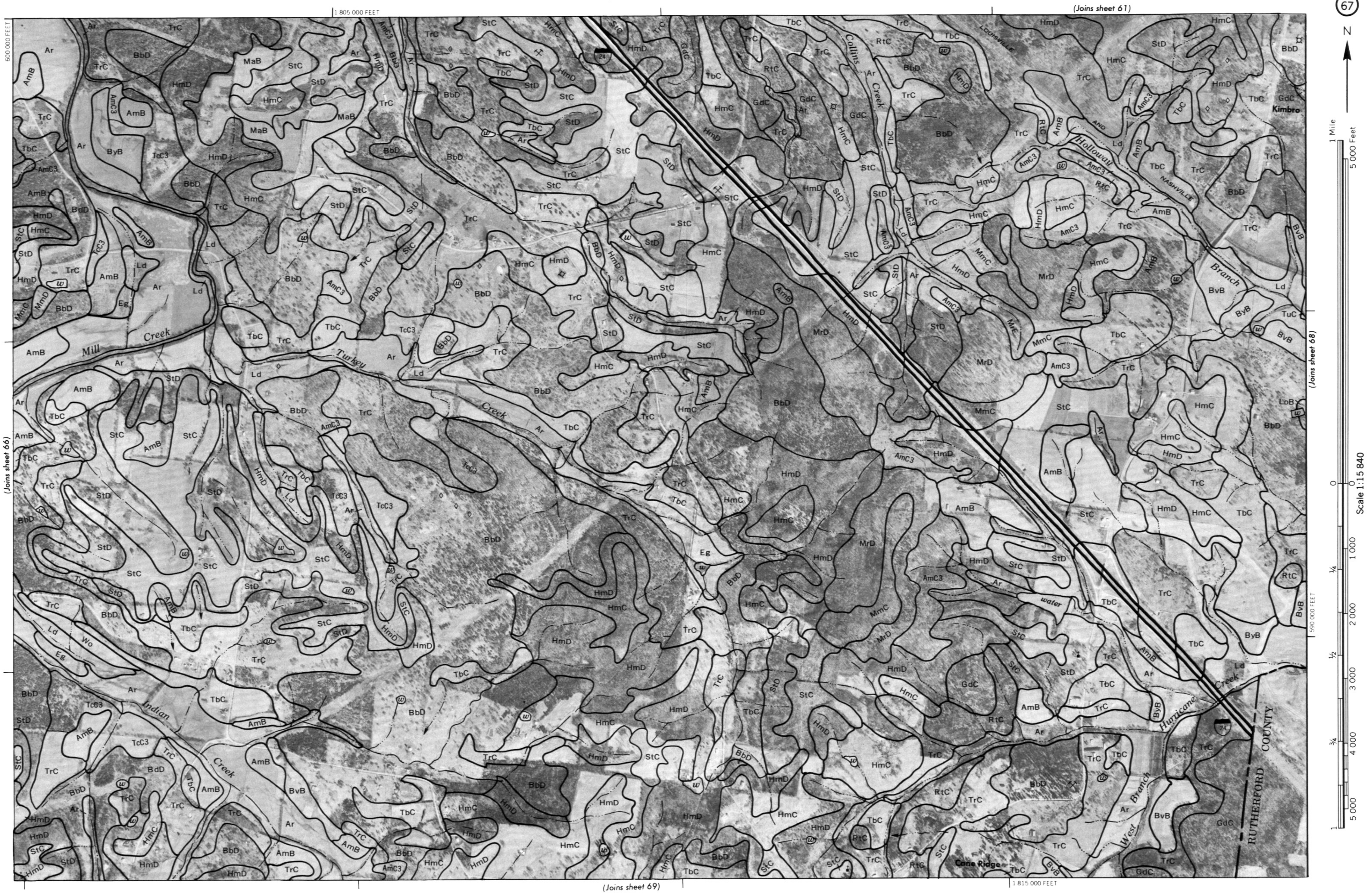
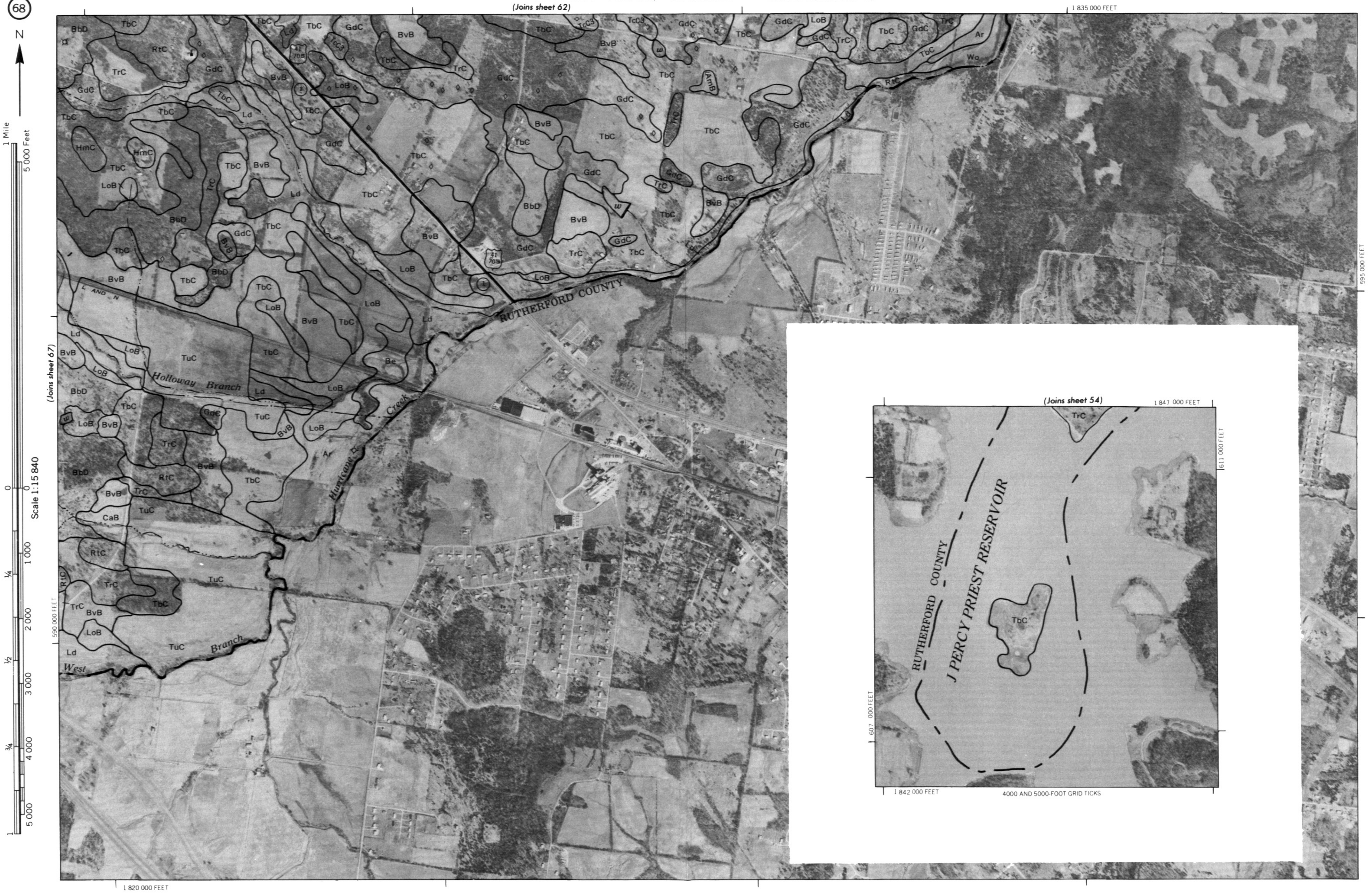
¾
(Joins sheet 65)
(Joins sheet 67)
590 000 FEET
1 785 000 FEET
(Joins inset, sheet 64)
Holt Knob
Patterson Knob
Wrencoe
WILLIAMSON COUNTY
Mill Creek
Indian Creek
water
41A
31A
11
MrE
MmD
MrD
MmC
MaB
BsE
HmD
HmC
StC
StD
TbC
TrC
Ar
AmB
AmC3
AmC
CaB
Ld
Eg
RtC
BbD
w

DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 67



DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 68



DAVIDSON COUNTY, TENNESSEE — SHEET NUMBER 69